Community Health Workers in Sergipe, Brazil: Implications for their future role in maternal and child health

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Contents

Abstract

Every year six million children die worldwide due to diseases that are easily preventable or curable. Interventions to reduce the number of deaths are offered by health facilities, yet many children continue to die at home without receiving any type of health care. Expansion of the strategy for the Integrated Management of Childhood Illness (IMCI), promoted by WHO and UNICEF, provides a unique opportunity to improve health care for young children at the household level.

This thesis examines the potential role for community health workers (CHWs) in extending the IMCI strategy from health facilities to the community. A review of the literature on CHWs and IMCI is followed by a description of two state-wide questionnaire surveys and a qualitative study carried out in Sergipe, Northeastern Brazil, aimed at evaluating child health care with particular emphasis on the role of CHWs.

In the first survey, children less than five years of age were investigated regarding morbidity patterns, utilization of health services, socioeconomic and household conditions. A two-stage process led to a representative sample of caretakers of 1,785 children (response rate of 98%). About one third of the families with children were living below the poverty line and under unfavourable environmental conditions. Of all the children studied, 39% had been ill in the two weeks preceding the survey, mostly with acute lower respiratory infections which is the main reason for medical consultations and hospital admissions in the State. Co-morbidity was frequent and 85% of all reported illness episodes were covered by the IMCI strategy. Nine out of 10 children were fully immunized, and 69% had had their growth monitored in the last month. Almost all children who sought care were seen by a health worker. Despite high access to health care, essential drugs were often unavailable in health facilities. Over-prescribing was also common with two thirds of children, seen by a doctor, having received an antibiotic. The median duration of total and exclusive breastfeeding were very short at 5.4 months and 2.1 months, respectively. Complementary feeding was also inappropriate with a median number of three meals in the previous 24 hours when, at least, five meals are recommended. There is therefore a potentially significant role for IMCI in improving the quality of care and nutritional management of children under five years of age.

CHWs were regularly visiting 81% of all children under five years of age in the State. There was a clear trend towards higher coverage among the poor. Coverage was highest among children living in municipalities in the interior of the State (86.9% against 58.1% in the capital) and in rural areas (88.5% against 76.3% in urban areas). CHWs were also more

likely to visit children whose mothers did not attend school (86.3% against 69.3% with nine years or more of schooling) and those belonging to families earning less than one minimum wage (89.2% against 69.4% of families receiving four minimum wages or more). This suggests that CHWs are contributing to reducing inequities in access to basic health care and may explain the high coverage of immunization and growth monitoring activities as CHWs play a major role in delivering these activities.

In the second representative survey, 311 CHWs were asked about their knowledge on child survival issues as well as about the support and supervision they received from their local health teams. Again, a two-stage sampling process (municipalities and CHWs) was used with a response rate of 96%. CHWs from Sergipe state were usually female, young and married. Their educational level was substantially higher than that of mothers of young children. Yet, CHWs were inadequately trained, supervised and supported. They were overloaded having to deliver 26 different tasks and usually worked alone in the community. In addition, their professional standing was negatively affected by low salaries, a lack of job security and few fringe benefits. A comparison of families who were regularly visited by CHWs and those that were not, showed a positive effect on maternal knowledge about oral rehydration therapy, breastfeeding and kind of delivery. Children who were visited were also more likely to receive vitamin A and be weighed regularly. The positive impact of CHW visits remained after adjustment for confounding variables. These findings suggest that CHWs are already effective in improving maternal knowledge as well as in providing several interventions that are part of the IMCI strategy.

In order to investigate perceptions and beliefs regarding health care, the qualitative study included expert interviews with doctors, nurses and heads of municipal departments of health as well as in-depth interviews with a sample of CHWs. Mothers of children under five years old were enrolled in the qualitative study through focus groups discussions. A total of 90 qualitative interviews and six focus groups were carried out by the author of this thesis and an anthropologist. These data showed that the relationships between facility workers, CHWs and community mothers were often conflicting. Facility workers did not take part in community activities and, in turn, mothers did not participate in group activities in the health facilities. As a result, integration was poor or non-existent. Mothers, especially those from rural areas, wanted a greater availability of doctors and nurses. Most facility workers, in contrast, judged mothers to be highly demanding, making excessive use of health services by seeking health care for mild illnesses, and making inappropriate demands because they

lacked knowledge about the roles of the different cadres of health workers.

The role of CHWs in the health team was unclear and their tasks were not properly defined. Their relationship with facility workers, especially doctors, was often conflicting. They also did not relate well to urban mothers, who wanted direct access to doctors and who did not feel that CHWs had greater knowledge than themselves. Rural mothers had a generally positive view of CHWs. Currently the main task of CHWs is to act as messengers between the community and the health facility. While this is a positive role per se, CHWs could have a greater impact if their roles in urban and rural areas were more specialized. In urban areas, they should be better trained to deliver educational messages, whereas in rural areas they should also be allowed to perform simple curative tasks to improve their professional standing as well as to deliver key interventions in areas with poor access to health facilities.

Almost all respondents stated that extending the activities related to IMCI - such as identifying pneumonia and dysentery at household level through CHWs – would be highly appropriate and desirable. However, to effectively extend IMCI to the community through CHWs, substantial changes would have to occur in their selection, training, supervision, support and professional standing.

Several policy recommendations for improving child health in Sergipe are presented. These include improving the performance and professional standing of CHWs and redefining their tasks in the light of the IMCI strategy. Recommendations are also given for improving the integration between communities, facility-based health workers and CHWs, and on how to extend IMCI more effectively to the community through an enhanced role for CHWs.

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Panels

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Dedication

To my mum, my dad and the people from Itapirapuã Paulista, my village in Vale do Ribeira, São Paulo State, Brazil.

Chapter One:
Introduction

1.1 Overview of the chapter

This chapter aims to state why this study should be done. It is divided into four sections, starting with the rationale for the thesis and the magnitude of the problems affecting child health worldwide. The next section presents the study's aims, objectives and assumptions. Finally, the chapter ends by describing the structure of the whole thesis.

1.2 Study rationale and research problem

The twentieth-century has ended and yet health care for many people in different parts of the world remain inadequate, inappropriate, inaccessible or even non-existent. The inverse care law, which means better care is frequently accessed more by those who are already in better health, and its corollary which states that new health interventions initially reach those who need them least, continues to hold true (Hart 1971; Victora et al 2000). The impact of this heritage of inequity for child health is about 10.5 million annual deaths among children under five years old, of which six million are due to diseases that are easily preventable and treatable (Black et al 2003).

However, substantial progress was achieved in the last quarter of the twentieth century. In this period, the number of deaths per year among children under five years old was reduced to 10 million from 30 million (WHO 1999). The main factors behind this remarkable reduction were improvements in immunization coverage and better case-management of diarrhoeal diseases and acute respiratory infections (Ahmad et al 2000). Specific and effective interventions were clearly recommended by the World Health Organization (WHO) and the United Nations' Children's Fund (UNICEF) using vertical programmes in partnerships with many countries.

Many public health practitioners believe that vertical programmes achieved their best results in the past and that a new approach for child health is now necessary. They argue that this new approach is needed because many sick children present with multiple diseases, with a range of symptoms and signs, and diagnostic errors were frequently made by health workers in the former vertical programmes (WHO/UNICEF 1997; Tulloch 1999). Therefore, an integrated approach for managing sick children is required. Based on previous experience

with disease-specific control programmes, WHO and UNICEF launched in 1995 the Integrated Management of Childhood Illness (IMCI) (Tulloch 1999). The strategy aimed to reduce the frequency and severity of illness due to pneumonia, diarrhoea, malaria, measles and malnutrition in developing countries, by improving prevention and case management practices in health facilities and selfcare at home (WHO/UNICEF 2001).

Notwithstanding, in the short lifespan of IMCI, it seems to be reaching the same people who previously attended health facilities, while many children continue to die at home without any type of care (Oluwole et al 2000; Ali et al 2005). Also in many countries, provision and utilization of public health services remains too low, particularly among the poorest people (WHO/MCE 2002; Schellenberg et al 2002). For IMCI to succeed it is essential that it reach these high-risk children at home.

Community health workers (CHWs) may represent one of the best alternative ways of reaching such children because they can visit families often, they usually live in the community and know it well. If trained on child survival messages, they could expand IMCI to the household level (Walt 1990). In addition, involvement of CHWs in IMCI could help to integrate them into the local health services, delineate their role within the health system and better specify their tasks. For example, the algorithm provided by the Pan American Health Organization (PAHO) for training CHWs in IMCI shows how they can help promote preventive interventions, identify common diseases, recommend home management and refer family members to health services if necessary (PAHO/OMS 1998).

In the 1990s, the Brazilian Government implemented two national programmes in Primary Health Care (PHC). In 1991, the *Programa de Agentes Comunitários de Saúde* (Community Health Workers Programme or PACS) was launched. It consists of the establishment of teams of about 30 CHWs coordinated by a nurse, with the objective of offering basic health care at household level to adults and children. By the end of 2003, about 105,000 CHWs had been incorporated in PACS. In 1994, the *Programa de Saúde da Família* (Family Health Programme or PSF) was also launched. Each PSF team has a doctor, a nurse, a nurse auxiliary and four CHWs, who provide basic health care for the population living in a geographically defined area. About 102,500 CHWs are operational in 22,000 PSF teams. Thus, in June 2005, a total of 207,500 CHWs were active in Brazil under governmental programmes, reaching 72.4 million people in 95% of all municipalities in the country (MS/COSAC/SPS 2005).

In 1997 the Brazilian Ministry of Health with support from the WHO, PAHO and

UNICEF started to implement the IMCI strategy in the Northeast of Brazil. Sergipe, the smallest Brazilian State, was one of those selected for early implementation.

As mentioned before, IMCI is now the main global strategy for improving child health. However, a recent multi-country evaluation described in Chapter Three has shown that its community component has been poorly implemented in most countries (Bryce et al 2004). Thus there is a great need to identify strategies – such as the use of CHWs – who might expand IMCI to the community level. For this reason, in 2000, a decision was made by WHO to assess the potential role for CHWs in extending the IMCI strategy from local health services into the community in Sergipe State. The following sections of this thesis describe how this study was carried out to evaluate this initiative and presents the main results and conclusions. It concludes by presenting the possible policy and programme implications for the Brazilian government.

1.3 Aims and objectives

This study set out to assess the potential role of CHWs in extending the IMCI strategy from local health services to the community and to identify how this extension might be successfully achieved. It was not aimed at evaluating the effectiveness of IMCI as a child survival strategy. The objectives were established on the basis of the main gaps identified in the literature review (see Chapters Two and Three) and were selected for their potential contribution to current international policies.

Four main aims were proposed for this study:

1) To describe the roles and activities performed by CHWs in the study area;
2) To assess the current situation with respect to integration between mothers of children under five years old, CHWs and local health services, especially doctors and nurses;
3) To assess the expectations among mothers of children under five years old, CHWs and health workers about the possible extension of IMCI to the community through CHWs and
4) To identify the strategic requirements necessary to promote this extension.

The following study objectives were also defined:

1) To describe the personal (age, sex, schooling, place of residence etc.) and professional (background, training, supervision, etc.) characteristics of a

representative sample of CHWs; and their skills and knowledge of basic health interventions for ARI, diarrhoea, growth monitoring, child development, nutrition counselling, antenatal care and immunisation;

2) To measure the utilisation of health facilities for specific interventions for improving child health such as immunisation, growth monitoring and vitamin A supplementation for children under five years old in Sergipe State;

3) To estimate the population coverage of the CHW programme in the State by determining the proportion of children under five years of age who had been visited regularly by the programme's CHWs.

1.4 Research assumptions

The review of the literature on CHWs (see Chapter Two), suggested that there may be important problems associated with the functioning of CHWs and the quality of their work. There are also important research gaps regarding what types of tasks may be delegated to CHWs in different health systems contexts, on how CHWs relate to other cadres of health workers, and on how effective CHWs are in changing health indicators. In particular, there are a lack of studies in middle-income country contexts, where CHWs work side by side with health professionals such as doctors and nurses, and where utilization of health facilities is high. These observations led to formulating the following assumptions which could be examined in the Brazilian context:

1) CHWs are frequently inadequately trained, supervised and supported and they have an excessive number of tasks and a poor knowledge of child survival;

2) CHWs and health services, especially those for mothers of children under five years old, do not work in an integrated fashion; conflicts between CHWs, health workers and the community interfere with the functioning of local health services;

3) CHWs are able to reach the poorest families with health interventions;

4) Coverage levels for specific interventions among children under five years old are generally low, except for basic immunization, and areas served by CHWs are significantly better covered than unserved areas and

5) Substantial improvements will be needed in CHW programmes if they are to be effective in extending IMCI into the community.

1.5 Outcomes examined

In addition to providing general information on socioeconomic conditions, morbidity, health care utilization and coverage of key child survival interventions in the state, the following outcomes will be addressed through the quantitative and qualitative parts of the study:

1) Coverage of CHW visits with emphasis on equity issues;

2) Effectiveness of CHWs;

3) Integration between CHWs, community mothers and local health services and

4) Facilitating factors and barriers in extending IMCI to the community through CHWs.

Integration will be measured by considering the number of home visits performed by health workers (doctors, nurses and CHWs); the number of patients referred by CHWs to health services; the number of patients who, after being treated in local health services, returned to CHWs to be followed and treated by CHWs at home; and the perceptions of heads of municipal departments of health, doctors, nurses and CHWs.

1.6 Structure of the thesis

This thesis is presented in eleven chapters. The rationale for this study is shown in this chapter and it followed by a literature review of CHWs and IMCI in Chapters Two and Three respectively. Chapter Four describes Brazil, community health workers and the state of Sergipe while Chapter Five is devoted to explaining the research methods used for both the quantitative and qualitative parts of the overall study. Chapters Six to Nine present the study results. Chapters Six and Seven refer to the quantitative studies of children under five years old and community health workers respectively. Chapters Eight and Nine present the findings from the qualitative studies including in-depth interviews with heads of municipal departments of health, doctors, nurses and CHWs. A discussion of the limitations and main findings from the study are presented in Chapter Ten, followed by the conclusions and recommendations for policy and research in the Chapter Eleven. In the appendices copies of the permission from the State Department of Health in Sergipe, approval from the research ethics committees of the London School of Hygiene and Tropical Medicine (LSHTM) and from the Federal University of Rio Grande (FURG), Brazil, introductory letters and questionnaires are provided.

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Chapter Two:

Health care by community health workers: review of literature

2.1 Introduction

This chapter provides an overview of some of the most important experiences with community health workers (CHWs) worldwide. In this study CHWs are considered to be health workers without a university level training and who routinely offer basic health services at household level, including preventive, promotive, educative and curative health care. They may be a part of the formal government health services or acting in a more informal, supportive role. They may work in rural or urban areas and they may be paid or volunteers.

A systematic review from 1970 to 2003 was performed in three databases: MEDLINE (National Library of Medicine, United States), POPLINE (Johns Hopkins University, United States) and LILACS (Latin American Literature in Medical Sciences, Brazil). The search terms were: community health workers, community health aids, family welfare educator, health promoter, rural health aides, barefoot doctors, feldshers, village health workers and village health volunteers. After excluding repetitions, 347 abstracts were read, 189 selected as relevant to this thesis and 168 full papers were obtained and read. A number of papers presented at conferences, book chapters, and unpublished reports were also included. In addition, senior investigators with publications on CHWs (such as Gill Walt, David Sanders, David Werner and Peter Berman) were contacted in order to identify additional references. The WHO Regional Offices in South Asia and Africa, areas with the greatest experience of using CHWs, were also contacted. The search covered papers describing the characteristics and implementation of CHW programmes, the profile of these workers, and their potential effectiveness.

This type of health worker appeared in the 15th century in Switzerland's German-speaking areas and spread throughout practically all of Europe and then to other countries (Kosoy and Ohry 1992). They are known by a variety of names, such as feldshers in Europe, barefoot doctors in China; village health workers, volunteers, guides, helpers, communicators, development agents; health volunteers, health promoters; family welfare educators, auxiliary nurses, nutrition leaders, *brigadistas*, rural health aides and finally community health aides, leaders, agents and workers in the rest of the world (Walt 1990).

Finally, in the mid-80s, the category of community health workers was widely assumed, particularly in many developing countries.

This chapter starts first with feldshers in Europe, especially in Russia, then to barefoot doctors in China, followed by an experience with CHWs in Asia, Africa and Latin America. The final section is devoted to factors that influence the effectiveness of CHWs.

2.2 Community health workers in Europe

The idea of using health personnel for preventive and elementary treatment on a large-scale was implemented with feldshers in the sixteenth-century (Kosoy and Ohry 1992). The feldshers were semi-professional medical workers trained through apprenticeships who offered medical care first to the Army and, subsequently, to the peasant population (Sidel 1968a; WHO 1974).

Feldshers offered basic care in health service facilities and in the community through household visits. Also, in epidemic situations, they proved efficient at identifying cases, providing health care for sick people and eliminating sources of contamination. Their performance gained them the respect and admiration of the peasant population but, at the same time, gained them the hostility of local health teams and physicians. Because the feldshers had limited capacity to deal with diseases, physicians said that they were causing more harm than good and for this reason should be evicted from the health service as soon as possible. One leader of the anti-feldshers crusade declared that: "Feldshers, who can neither diagnose nor treat a disease, can be of no use whatsoever to the people" (Sidel 1968a).

Today feldshers are designated medical workers with a secondary medical education, that is they attend a medical school with a three year curriculum. They can specialise in different areas and 75% of them are women. They are considered as medical assistants to physicians and work under a doctor's direct supervision (Kosoy and Ohry 1992).

2.3 Community health workers in Asia

Asia has had one of the most impressive CHW programmes since the end of twentieth-century. The barefoot doctors programme was implemented in China as part of the Proletarian Cultural Revolution (Sidel 1972). This programme fired the imagination of the international health community. Similar CHWs programmes have also been developed in India, Nepal, Pakistan and Sri Lanka.

In the 1950s, selected members of the production brigades from the Henan Province

were given training for three-months in basic health care for households (Sidel 1972). These new health workers, who were also part-time farmers, were named barefoot doctors. Their tasks were environmental sanitation, health education, first aid, immunisation, and some aspects related to medical care and post-illness follow-up. They also acted as a bridge between the community and health services. Each one usually served about one thousand peasants or 200-250 households and received for this job about US$10 dollars per month (Zhu et al 1989). Their salary was paid mainly by the local population with each peasant paying about US$1.5 a year to receive the barefoot doctors' visits (Sidel 1972; Hsiao 1984). In 1968 there were at least a million barefoot doctors and the Cooperative Medical System (CMS) had been implemented in two thirds of all Chinese villages (Zhu et al 1989). By 1978 there were about two million barefoot doctors and the CMS covered 90% of villages (Zhu et al 1989). In three decades, the infant mortality rate (IMR) had been reduced to 40/1000 from 250/1000, the maternal mortality rate to 50/100000 from 1200/100000 (Taylor et al 1991; Hsiao 1984). However, in 1979 the socialist system began to be replaced by a market system (Hsiao 1984). Communes and the CMS were also being dismantled and many barefoot doctors began to abandon their posts to work as farmers because the salary was better (Hsiao 1984; Taylor et al 1991; Hesketh and Zhu 1997).

Barefoot doctors impressed many countries and positive impressions about the Chinese programme were disseminated around the world and helped the WHO launch in 1978 Health For All By The Year 2000.

Programmes with CHWs implemented in other Asian countries also experienced issues regarding local health systems but suggested that CHWs were potentially effective. These issues are presented below.

Acute lower respiratory infections (ALRI): CHWs were able to reduce neonatal infant mortality in an area with high such mortality in Gadchiroli, India, (Bang 1999), while in western Nepal they detected and treated pneumonia and to reduced overall child mortality, even without other primary care activities (Pandey et al 1991). In Pakistan case management of acute respiratory infection by CHWs reduced the ALRI-specific mortality rate among children less than five years old in intervention villages (Kan et al 1990). In Bangladesh, CHWs were also found to be able successfully to diagnose and to treat ALRIs properly (Hadi 2003);

Tuberculosis: the involvement of CHWs in rural Bangladesh in tuberculosis control programmes resulted in high rates of case detection, treatment, compliance and a cure rate of

at least 85% (Chowdhury et al 1997). CHWs were also found to be more cost-effective than the government tuberculosis programme (Islam et al 2002).

Two other studies showed that in West Bengal, CHWs were cost-effective for ascertainment of childhood epilepsy (Pal et al 1998) and in Bihar insecticide spraying performed by CHWs reduced the incidence of kalazar and malaria in three villages (Thakur et al 1994).

Health systems: trying to place people's health in their own hands, the government of India implemented in 1977 a national programme with volunteer CHWs. Evaluation of this programme ten years later showed that it had a limited effect largely because CHWs had an excessive number of tasks, poor training, inadequate support and insufficient supervision. CHWs showed lack of interest in preventive and educative tasks, weak links with community and local health services, negative discrimination by other health workers and abandoning of many tasks to the detriment of family planning. CHWs were criticized because of little evidence that their were leading to better health status indicators (Desai 1992). Similarly in Nepal, such programmes had problems because they worked exclusively with women, did not provide any type of incentives, training was poor, and supplies were inadequate. Health workers did not participate of the CHW programme and geographical and political diversity were additional constraints for the success of the programme (McConnell and Taylor, 1992). Evaluation of the CHW programme in Sri Lanka demonstrated high attrition and low activity rates and absence of real conditions for future sustainability (Walt 1989).

Apart from the Chinese barefoot doctors, who were engaged by the central government and had strong commitment to offer basic health care for unserved people, most other large programmes with CHWs in Asia have shown variable success. CHWs have been shown, however, to be effective in the presentation and treatment of some common causes of childhood mortality.

2.4 Community health workers in Africa

Most countries in Africa have attempted to implement CHW programmes that offered basic health care for non-served or unserved people, mainly those living in rural areas. In some cases these early experiences were later transformed in large scale programmes, as in Tanzania (Heggenhougen et al 1987). Some of these programmes are presented below.

Malaria: three studies carried out in The Gambia showed that CHWs were able to reduce childhood mortality due to malaria (Greenwood et al 1988; Greenwood 1993);

reducing mortality and clinical attacks by 49% and 73% respectively in children aged 3-59 months (Menon 1990). In Tigray, Ethiopia, CHWs were able to recognize clinical malaria when there was no access to microscopy (Ghebreyesus et al 2000) and to reduce mortality rates among children under five years by providing antimalarial drugs to them (Kidane and Morrow 2000). In Malawi monitoring data showed a high degree of compliance with curtain re-impregnation of nets and high acceptability of the role of CHWs (Rubardt 1999). In Kenya CHWs adequately treated 90% of malaria cases but often made mistakes assessing symptoms to classify illnesses, and prescribing medication, although the care offered by them was not consistently poor (Kelly et al 2001). In Zaire CHWs were also able to administer timely and effective treatment for presumptive malaria (Delacollette et al 1996).

Malnutrition: in Tanzania, a study carried out in Mvumi mentioned that CHWs were able to rehabilitate severely malnourished children (Matomora 1989) and in Nigeria CHWs identified babies with low birth weight using a tape and referred them to the local services (Lawoyin 1998).

Immunization and breastfeeding: vaccine coverage was substantially improved in areas with CHWs in rural South Africa (Chopra et al 1997) while in Nigeria it was demonstrated that early and repeated contact with CHWs was associated with a significant increase in acceptability of colostrum, early initiation of breast feeding, full breast feeding at four months and for breastfeeding exclusivity and duration (Davies-Adetugbo 1996).

Infant mortality rate: in Bagamoyo, Tanzania, between 1983 and 1986, CHWs contributed to reducing mortality rates among under fives from all causes from 40.1/1000 to 29.2/1000 and for pneumonia from 14,3/1000 to 10,0/1000 (Mtango 1986). However, another study comparing all causes of deaths among children under five years old in areas with and without CHWs in The Gambia did not find any significant differences (De Francisco et al 1994).

Other diseases: in The Central African Republic CHWs were effective in treating onchocerciasis (Hopkins, 1998). In Cameroon CHWs were able to diagnose dracunculiasis, which was later confirmed by health workers (Sam-Abbenyi 1999). Also in Cameroon, CHWs confirmed a high accuracy (87%) in identifying potential schistosomiasis transmission foci and snail host populations were virtually eliminated from treated sites (Greer et al 1996) but they were not able to identify guinea worm in neighbouring farm hamlets in Youruba, Nigeria (Brieger et al 1997). In South Africa, treatment cure rates and retreatment for tuberculosis in areas attended by CHWs were 16% and 34% respectively higher than in

control areas without CHWs (Dudley et al 2003). In Nigeria, Kwara State, CHWs were able to manage ALRIs properly and to prevent its occurrence (Fagbule et al 1994).

Training, supervision, support and drop out: evaluation of a CHW programme around Lagos, Nigeria, showed that supervision was poor and village health committees were interfering. They role of CHWs was changing year by year and the drop out rate reached 13% (Bamisaye et al 1989). In Zambia, irregular and unreliable supply of drugs and selection of the wrong people to be trained for community health workers were the main causes of poor performance of CHWs (Stekelenburg et al 2003). In Lesotho, evaluation of a CHW programme demonstrated that they were inadequately trained, supervised and supported and they were doing more preventive than curative tasks (Andriessen et al 1990). Finally in The Gambia it was identified that CHWs were poorly trained and supervised, had a limited range of drugs and usually were not available for consultation (Menon 1991). Training at district level in Tanzania cost about 80% less than at national level (Mayombana et al 1990).

Utilization of health services and referral: in Ghana, over a period of two years, CHWs increased the utilization of health services by women with obstetric complications by three times (Opoku et al 1997). A study carried out in Burkina Faso to evaluate utilization of CHWs in relation to other sources of health care showed that they were used mainly for mild diseases. Also, no pattern of referral was identified between health workers and CHWs (Sauerborn et al 1989).

Integration with mothers and health workers: in Tanzanian CHW programme showed that villagers did not know what CHWs did and in any case curative care was preferred by villagers. In addition, supervision and support for CHWs were inadequate, diagnostic and treatment skills were poor and drop out rates were high. Consequently their health impact was not easily realised and the CHWs became discredited (Heggenhougen et al 1987). In Zambia tension existed between community and local health services when some villages failed to provide remuneration for their CHWs (Twumasi and Freund 1985). In Nigeria religion and gender played a role with some villagers who only accepted CHWs of the same religion and women preferring not to be visited by male CHWs (Iyun 1989). In The Gambia it was found that many mothers had forgotten that CHWs were able to treat diseases (Menon 1991). In Lesotho, there was no meeting between health workers, CHWs, and community members and relationships with village chiefs were very problematic (Andriessen et al 1990). In Zaire lack of a long-term commitment was a constraint to achieve real community participation (Delacollette et al 1996).

Other studies: in Nigeria, CHWs were able to obtain accurate numerical data at the grass roots level (Lawoyin 2001) while in Benin children who had regular personal contacts at household level with CHWs presented better health indicators (Velema et al 1991).

In conclusion there is some evidence that CHWs in Africa can be effective, particularly in small programmes and when dealing with specific health problems, such as vaccinations and malaria. However, often they became just an extension of the formal health services in the community and did not have a clear role. Inadequate training, poor support and inconsistent supervision appear to be the main reasons for their low effectiveness.

2.5 Community health workers in Latin America

The main findings from publications about CHW programmes in Latin America are presented below according to their main results:

Diseases: in Haiti infant mortality was drastically reduced mainly due to prevention of tetanus, malnutrition, diarrhoea and tuberculosis as promoted by CHWs (Berggren et al 1981). A study from the Northeast of Brazil concluded that in poor urban areas CHWs can increase breastfeeding prevalence, reduced self medication by mothers, improve immunization rates and increase the number of children referred for medical consultations (Emond et al 2002). An evaluation of a programme using a control group in São Paulo, Brazil, suggested that CHWs contributed to reducing hospitalization rates and increased the use of oral rehydration therapy during bouts of diarrhoea. However, prevalence of stunting and incidence of low birth weight did not change over a three year-period (Cesar et al 2003). In Costa Rica CHWs adequately weighed children, calculated ages, identified children requiring nutritional services and used the growth chart properly. However, they still needed to improve their referral, education, and documentation skills (Valadez et al 1996). In Guatemala, CHWs demonstrated great improvement in their ability to correctly diagnose and recommend treatment for diarrhoea of varying types and severity (Bailey et al 1996), while in Bolivia study results showed that CHWs were capable of effectively managing ARI cases according to WHO guidelines (Zeitz et al 1993).

Health system and political involvement: Nicaragua is an instructive example of the possibilities and limitations of a PHC strategy using volunteer CHWs locally named *brigadistas*. They were part of the Frente Sandinista de Liberación Nacional that overthrew the repressive and corrupt Somoza regime in 1978 (Coyle et al 1992). With their involvement in the liberation struggle the CHWs lost their apolitical status. In this period about 40

brigadistas were killed and many others were kidnapped, threatened and tortured. For this reason, hundreds of them dropped out and the programme was almost extinguished (Coyle et al 1992; Scholl 1985). Even with subsequent political involvement in important government decisions in the new central government, intersectoral integration within the health sector was also poor in Nicaragua (Coyle et al 1992).

Training, supervision, support and drop out: in Peru three years after implementation of a CHW programme, 60% of them had dropped-out and that they had substantially improved vaccinal coverage, despite they were stressing curative tasks. Also, these CHWs increased the use of public health services in the period but they did not change in terms of diarrhoea management or improvement of drinking water quality (Christensen and Karlqvist 1990). In Haiti support was inadequate, supervision did not exist and there was an excessive number of activities to be developed (Gagnon 1991) while in Colombia, feedback and rewards from the community have a greater influence on work performance than do those stemming from the health system (Robinson and Larsen 1990).

Relationships with community members and health workers: in Bolivia good relationships between CHWs, doctors and especially nurses were acknowledge as a key feature in the success of the local programme (Bastien 1990) while in Haiti relationships between CHWs and other health team members were often referred to as tense (Gagnon 1991). In Ecuador, the presence of a health committee was a strong predictor of the CHW performance (Mangelsdorf 1988). In Honduras the CHW programme failed mainly because of a lack of respect for the socio-cultural context of rural people and their perceptions. Tensions were seen within cosmopolitan medicine between professionals in cure and prevention (Kendal 1992). Finally in Ecuador a factor for success was the involvement of community participation in both planning and implementation of immunization (San-Sebastian et al 2001) while in Dominican Republic job satisfaction was linked to more effective CHWs (MacCorquodale 1982).

According to the studies previously mentioned for Asia an Africa, problems began when small scale CHW programmes were going to scale. In this situation, CHWs appeared to fail to achieve their contribution or potential, largely because they did not receive good support and supervision, the essential pre-condition for large programmes (Berman et al 1987; Walt 1990; Kahssay et al 1998). In addition, CHWs were often seen as marginal to both the formal health care system on the one hand and the social setting of health care on the other. This marginal role between the community and the health sector can lead to acceptance

by neither.

All papers that were identified were reviewed to identify methodological limitations. Those with substantial selection bias, important problems with non-response (either a response rate under 80% or lack of information on this topic), and those whose conclusions were not supported by the data, were excluded from the review. Among the studies that were included, some limitations were also present, but these were judged not to affect the overall validity of the conclusions. Common problems included the lack of representativeness of the sample, small sample sizes, absence of control for confounding factors, lack of a control group, and inappropriate definition of outcomes.

2.6 Health For All by The Year 2000 and community health workers programmes

By 1970 expansion of the Barefoot Doctors programme in China was well underway (Taylor et al 1991). Visitors were impressed with the results achieved by the barefoot doctors and with the extremely low cost of the interventions (Sidel 1972). In addition, other positive factors were their popularity and the almost universal health care coverage achieved by such a large and poor country (Walt 1990).

Provoked by the Chinese experience and aware that government health services showed unequal access, poor availability and inappropriate services, many other developing countries decided to implement CHW programmes (Walt 1990; Starfield 1998).

In the mid-1970s, the World Health Organization (WHO) established a campaign that all member countries should provide for all their citizens by the year 2000 a level of health that would permit them to lead a socially and economically productive life (WHO/UNICEF 1978). This proposal was unanimously approved by the World Health Assembly in 1977 and this decision launched the campaign "Health for All by the Year 2000" (Starfield 1998). Based on this assembly resolution, WHO and UNICEF convened the Alma-Ata conference in 1978. This conference established the principles for Primary Health Care (PHC) worldwide, such that health care offered should be:

> *"...based on practical, scientifically sound, and socially acceptable methods and technology and universally accessible to individuals and families in the community by means acceptable to them and at a cost that the community and the country can afford to maintain at every stage of their development in a spirit of self-reliance and self-determination."* **(WHO/UNICEF 1978, page 16, general outline # 15).**

Primary health care was considered the key element in bringing people closer to the health service and the CHW programmes were seen as one of the best strategies to achieve "Health for all by the year 2000" (Starfield 1998). The Alma-Ata Conference declared:

> *"For many developing countries, the most realistic solution for attaining total population coverage with essential health is to employ community health workers who can be trained in a short time to perform specific tasks. They may be required to carry out a wide arrange of health care activities, or, alternatively, their functions may be restricted to certain aspects of health care... In many societies it is advantageous if these health workers come from the community in which they live and are chosen by it, so that they have its support"* **(WHO/UNICEF 1978, page 62, general outline # 80).**

CHWs programmes were adopted worldwide and CHWs were often referred to 'as liberators', 'pillars of health for all', 'the cornerstone of partners in PHC', 'extenders of service', 'bridge between communities and health service', and 'avenues for community participation', amongst others (Walt 1988). CHWs were also seen as an internal agent-of-change, not only for health care, but for the awakening of people to their human potential (Werner 1981).

Within this enthusiastic spirit, national CHW programmes were launched to extend basic health care for unserved and underserved populations (WHO 1989). At the same time that many of them were being implemented, other previously established CHW programmes were being evaluated (Rodhe 1983; Bhattacharji 1986; Berman et al 1987; Heggenhougen et al 1987; WHO 1989; Walt 1990; Frankel 1992).

Results of these evaluations showed that the CHWs were frequently inadequately selected and trained, poorly supervised and weakly supported. Refresher courses were rare or even non-existent and nepotism was frequent (Berman et al 1987; Walt 1990; Frankel 1992; Kahssay et al 1998). They had not been able to achieve the goals previously determined. According to these evaluations, unreasonable and unrealistic expectations had been placed on CHWs by the Alma-Ata Conference (Berman et al 1987; WHO 1989; Walt 1990). In addition, logistical and methodological limitations made it practically impossible to evaluate whether, in fact, the CHWs were effective (Walt 1990). Publications in the middle of the 1980s even suggested that the CHWs were inhibiting PHC (Skeet 1984; Jancloes 1984; Berman et al 1987; Heggenhougen et al 1987). Even the inspiring barefoot doctors programme was being reformulated (Rodhe 1983). The implementation of CHW programmes around the world was drastically reduced, some training was suspended and other

programmes were interrupted (WHO 1989; Walt 1988). Community health worker programmes were entering into crisis (Walt 1988).

Around this time the WHO and UNICEF promoted many meetings in different parts of the world to evaluate this situation and to try regenerates the credibility of CHWs (WHO 1989). A most important one was the Yaoundé Conference in Cameroon. This Conference stated that the CHWs should be:

> *'...members of the community where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organisation, and have a shorter training than professional workers'* **(WHO 1989).**

This redefinition of CHWs was an attempt to improve the links between them and the health services. A study group concluded that CHWs played a critical role in the promotion of people's health and that they should be supported and strengthened to improve their effectiveness (WHO 1989).

Despite recommendations made by the study group, this initiative was not enough to avoid the collapse of many national programmes. This weakness not only affected the CHWs but also threatened the future of PHC as a whole and, consequently, the probability of achieving Health for All by the Year 2000 (Walt 1990).

This resulted in increasing disinterest in this subject. Funding agencies withdrew financial aid. Many researchers changed to other priority areas, and the number of publications about CHWs decreased drastically. Programmes were interrupted indefinitely and many CHWs were dismissed or incorporated into the formal health services. The main argument used against them was that no study had demonstrated that they were effective. In 1990, CHWs were often seen as 'just a pair of hands' by the health sector and the community (Walt 1990). Support for CHW programmes at the national level was being put aside and the period of ostracism was only just beginning.

The Chinese experience with barefoot doctors had originally encouraged the WHO and UNICEF to launch the slogan Health For All by The Year 2000. The initiative put PHC and CHWs at the core of this proposition, while giving them excessive responsibilities and unrealistic attributions. Evaluations of national CHWs programmes showed that they were not able to develop their role as previously envisaged and that their effectiveness was not easy to demonstrate. By the early 1990s many CHW programmes had been suspended or

dismantled.

2.7 Factors influencing the effectiveness of community health workers programmes

Many factors have been identified as influencing the effectiveness of CHWs. A summary of the most important factors are given below in the Panel 2.1.

The first group of variables relate to programme implementation. The literature shows that an effective process for selecting CHWs needs both the involvement of local community leaders and local health staff in order to strengthen their acceptability (Heggenhougen et al 1987; Walt 1990; Frankel 1992; Kahssay et al 1998). Defining their tasks needs to be based on the main causes of child morbidity and mortality, restricting the number of tasks and having a clear definition of the working situation are also crucial (WHO 1989). Some programmes have tried to increase CHW effectiveness by focusing on specific tasks such as the diagnosis, treatment and management of acute respiratory disease (Sazawal and Black 1992; Bang et al 2001), malaria control (Delacollette et al 1996), growth monitoring (Valadez et al 1996), tuberculosis control (Chowdhury et al 1997), and immunization coverage (Chopra et al 1997). The appropriate balance between curative and promotive, preventive and educative tasks is also desirable (WHO 1989; Walt 1990). Curative tasks can provide an entrance to communities, increasing confidence between mothers and CHWs and facilitating the offering of health promotion and preventive measures (Heggenhougen et al 1987; Kahssay et al 1998). Training should neither be too short to make the CHW unsafe in conducting their tasks nor too long to make it boring and disinteresting (WHO 1989; Walt 1990). Supervision and support are all too often inadequate but need to be regular and constructive, while adequate drug supplies are essential to ensure CHWs can undertake required clinical tasks (Berman et al 1987; WHO, 1989; Kahssay et al 1998). Updating and extension of knowledge and skills through refresher courses are important to maintain credibility and motivation (Berman et al 1987; Walt 1990; Kahssay et al 1998). These variables are the pillars of the implementation of CHW programmes and evidence suggests that a lack in any one of them is likely to reduce programme effectiveness (WHO 1989; Walt 1990; Kahssay et al 1998). Logistical planning of factors such as definition of the target population, geographical area for coverage and the number of families to be attended by CHWs are also fundamental (Berman et al 1987; WHO 1989). Together these factors contribute to the definition of a reasonable and feasible workload. Distance between houses to be visited can be critical in low density rural populations (WHO 1989). This can reduce

costs, avoid logistic and transport problems and can decrease turnover (Bhattacharji et al 1986). To spend a lot of time walking to visit one or two families can be discouraging (WHO 1989; Kahssay et al 1998). In most CHW programmes, home visits are scheduled on a monthly basis. These visits do appear to facilitate integration between the community and CHWS and to improve their effectiveness (Cesar et al 2003).

Panel 2.1 Some variables influencing the effectiveness of CHWs.

<table>
<tr><td colspan="2">• Programme implementation
- Selection
- Task definition and balance
- Training
- Supervision
- Support
- Supplies
- Updating and extension of knowledge and skills
- Refresher courses</td></tr>
<tr><td>• Logistics
- Urban or rural populations
- Target population
- Number of families assisted
- Distance between houses
- Frequency of visits</td><td>• Financial resources
- Remuneration
- Fringe benefits
- Job security
- Financial support</td></tr>
<tr><td>• CHW characteristics
- Age
- Sex
- Schooling level
- Siblings
- Theoretical knowledge
- Language skill
- Ability to develop tasks</td><td>• CHWs' attitudes
- Satisfaction
- Enthusiasm
- Turnover
- Aspirations
- Rivalry
- Rapport
- Discrimination</td></tr>
<tr><td colspan="2">• Integration between the CHWs, community and local health services
- Access and availability of CHWs and of local health services
- Referral and follow-up treatment systems
- Participation in joint health activities by the three groups
- Expectations and perspectives of the three groups of each others role in health care
- Relationships between them</td></tr>
</table>

Financial resources are considered one of the most important issues for CHW programmes (Walt 1989; Kahssay et al 1998) but it remains uncertain how remuneration (or not) of CHWs affects their effectiveness, especially in large-scale programmes (Zoysa 1983).

It seems plausible that fringe benefits and job security are important because they give more satisfaction, security and status to the CHW (WHO 1989). Regular and sufficient financial support to the programme is essential, ensuring materials for CHWs to undertake their tasks and facilitating future planning to improve the programme (Berman et al 1987; Walt 1990; Kahssay et al 1998).

How well CHWs perform their designated tasks is crucial to programme success. While logistical and other factors can affect task performance, personal attributes of CHWs are also very important such as their sex, age, schooling level, siblings, theoretical knowledge, language skill and ability in executing tasks (WHO 1989; Walt 1990; Kahssay et al 1998). Schooling is fundamental in understanding topics related to training, recording and task development (WHO 1989). On the other hand, as demonstrated in India for example, too high a schooling level can make it difficult for the CHWs to have a good rapport with mothers (Bhattacharji et al 1986). It has been suggested that mothers who have a lot of children are more suitable as CHWs as they have more knowledge, ability and patience to explain health matters to other mothers (Frankel 1992). For example, they often talk about their experience rather than simply having theoretical knowledge (Bhattacharji et al 1986; Kahssay et al 1998).

2.8 Integration between the community, community health workers and health services

Attitudes towards their job, community, and health service are one of the most important aspects to be considered in CHWs programmes. Very often, the relationship between CHWs and health staff tends to be vertical, with CHWs being inspected more than supervised (Kahssay et al 1998). The satisfaction and enthusiasm experienced by CHWs for their tasks tends to decrease over time, especially when there are problems with implementation, logistics, financial support, supervision and salary payments, resulting in high turnover rates (Frankel 1992; Kahssay et al 1998). It is plausible that high turnover is a contributing factor to poor integration since establishing effective working relationships becomes more difficult. Some studies have found that the main aspiration of CHWs is to achieve a position in the local health centre and not in the community (Bhattacarji et al 1986; Berman et al 1987; Walt 1990; Frankel 1992). This can create rivalry and conflicts between the CHWs and the health staff, mainly auxiliaries, who feel their position may be threatened (Kahssay et al 1998). Reliability is an essential element in this linkage. But it is more easily

obtained by the CHW in the community rather than the health team (Kahssay et al 1998). Also, it is not uncommon that CHWs find that they are discriminated against by the health staff. This discrimination occurs when CHWs are considered as just an extra pair of the hands for the health services in the community or that they do poor medicine for poor people (Walt 1990). This happens because they are not seen as graduates and also because they work with underserved or unserved populations (Skeet 1984; Walt 1990; Frankel 1992; Kahssay et al 1998).

If CHWs are the link between the community and the health facilities in IMCI then there must be a high level of integration between the community, CHWs and the health services. Yet the literature shows that integration between them is widely cited but poorly studied and understood. Integration is usually assumed as an objective and not a mechanism to increase health service's effectiveness (Mills 1982). Integration is a key element for the effectiveness of CHWs because they are the health workers who are least adequately prepared, who work furthest from the health facilities and who deal with a range of problems. Yet by virtue of their level of training, they have limited capacity to solve these problems (Berman et al 1987; WHO 1989; Walt 1990; Frankel 1992). They therefore require integration with, and the support of, the health services in order to be effective. On the other hand, integration is fundamental to the health services if it is to extend medical care to all who need it. This is an important point for IMCI as "new health interventions tend to increase inequities, since they will be applied preferentially to those with better initial health status" (Victora et al 2000). Thus CHWs provide an opportunity to extend health care in the community and to reduce inequities in health service provision.

Since integration is poorly understood and yet considered so important, it will constitute an important part of the issues to be addressed in this study. In particular, understanding the facilitating factors and barriers to integration will be vital in determining the best way for CHWs to contribute effectively in extending IMCI to the community. Issues which will be studied as part of this investigation of integration include the access and availability of CHWs and of local health service and how these factors affect issues such as take-up and support; the CHWs' role in referral practices and follow-up of treatments; health seeking behaviours of mothers of young children and the inclusion of CHWs in these behaviour patterns (Gove 1997; IMCI/WHO/UNICEF 1998); the planning and conduct of joint health activities between the three groups expectations and perspectives of the different groups on health care; and, finally, the relationships between the CHWs, community and

local health teams.

This review of main studies shows that many factors influence the effectiveness and integration of CHW programmes. Some are crucial for defining the role of CHWs in the health service, for instance, their tasks should be clearly defined, support and supervision needs to be improved, professional standing defined and integration with the local health team and community reinforced. Finally, the limitations of CHWs should be recognized and their contribution should be compatible with their abilities in order to avoid disappointments.

2.9 Conclusions and research gaps

The review of the literature revealed a general feeling of frustration with CHW experience. Although CHWs are able to reach the population, the quality of care provided by them is often poor. This results from insufficient training, inadequate support and supervision, and an excessive number of tasks that they are expected to deliver. CHWs are often relegated to being messengers between facility-based health workers and the community, because their roles are not well-defined and they are not allowed to deliver most life-saving interventions which are reserved to facility-based workers. This is despite the fact that small-scale studies have shown that CHWs can have an impact on mortality, for example, if allowed to provide antibiotics for childhood infections (Sazawal and Black 1992).

For the reasons discussed above, most experiences with CHWs up to 1990 failed, particularly at the national level. A crucial reason for failure was the unrealistic expectations created by governments, with support from WHO. Many programmes were discontinued and today the only national programmes still active are in Brazil and the Philippines. However, CHWs are the only health workers who are effectively acting at the family level, and they can play an essential role in scaling up health interventions in settings where facility-based health services fail to reach a large proportion of the population. The experience accumulated in the literature suggests that, to achieve their potential, CHWs should be adequately trained, have well-defined roles, receive supportive supervision, and work closely with facility-based workers. This is particularly true for child health and IMCI.

When examining the literature on CHWs in order to identify potential research gaps that may affect IMCI implementation, the following questions were proposed:

1. What tasks should be delegated to CHWs in different health system contexts?
2. Are CHWs indeed able to reach the poorest, i.e. those who mostly need child survival interventions?

3. Are CHWs effective in improving health indicators in large scale projects?
4. How do CHWs relate to other members of health teams?
5. What barriers and facilitating factors affect the use of CHWs for extending IMCI to communities?

Panel 2.2 Key messages about programmes with community health workers.

Community health workers (CHWs):

- Are able to identify some diseases, provide basic health care at household level and refer sick people to local health services;
- Are overloaded, their role is not clearly defined and, usually, they work alone in the community;
- Suffer professional negative discrimination from local health teams, largely, because of their non-professional status;
- Are key to bringing people closer to health services and to disseminating health information;
- Programmes have failed largely because CHWs were not adequately trained, supervised and supported;
- Typically CHWs programme are organised within the context of vertical programmes.

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Chapter Three:

Integrated Management of Childhood Illness: review of literature

3.1 Introduction

This chapter aims to describe the strategy for Integrated Management of Childhood Illness (IMCI) since its inception. The chapter starts with a review of trends in mortality among children under five years old worldwide and then provides a description of some vertical programmes previously supported by the WHO. The chapter then focuses on IMCI, including the community component, and presents a comprehensive review of the strategy. Next follow the results of the Multi-Country Evaluation (MCE) study about IMCI and a list of potential topics for investigation at community level. Finally, advantages and limitations of the strategy are listed and the main conclusions on the future of IMCI are presented, particularly with regard to research questions for community level studies.

A systematic review from 1995 to 2004 was performed in three databases: MEDLINE (National Library of Medicine, United States), POPLINE (Johns Hopkins University, United States) and LILACS (Latin American Literature in Medical Sciences, Brazil). The search terms were IMCI, Integrated Management of Childhood Illness, AIEPI, Atención Integrada as Enfermedades de la Infancia, AIDPI and Atenção Integral as Doenças Prevalentes na Infância. In this way, 107 abstracts were selected as adequate to the purpose of this thesis, 91 full papers were obtained and read. Some book chapters and unpublished reports were also included. Also, coordinators of IMCI at the WHO in Geneva (JC Martines) and PAHO in Washington (Y Benguigui) and in the Brazilian Ministry of Health (AM Fontenele) were also contacted. Many investigators from developing countries participating in a meeting held in Baltimore in 2000 and London in 2002 were contacted by myself and asked for publications and preliminary results of studies that they were carrying out.

Papers with methodological limitations such as substantial selection bias, important problems with non-response (either a response rate under 80% or lack of information on this topic), and those whose conclusions were not supported by the data, were excluded from the review. Among the studies that were included, some limitations were also present, but these were judged not to affect the overall validity of the conclusions. The most common problems identified among papers included in this review were the lack of representativeness of the sample, small sample sizes, absence of control for confounding factors, lack of a control

group and inappropriate definition of outcomes.

3.2 Trends in mortality among children under five years old

Progress in reducing child mortality during the past few decades has been hugely impressive. The number of deaths among children under five years old fell from 30 million in 1970s to about 10 million at the end of the 1990s (WHO 1999). This reduction can be attributed to improvements in many areas, especially in immunization coverage, greater use of oral rehydration therapy, reduction of high-risk births, and progress in improving the health and nutritional status of mothers and children (Ahmad et al 2000). However, child mortality still remains unacceptably high in many parts of the world. In 2003, the mortality rate among children under five years old was still over 100 per thousand live births in 48 countries (UNICEF 2004). In addition, during the 1990s the decline in child mortality had slowed down in all WHO regions and had stagnated in India, China, and the Western Pacific (Ahmad et al 2000).

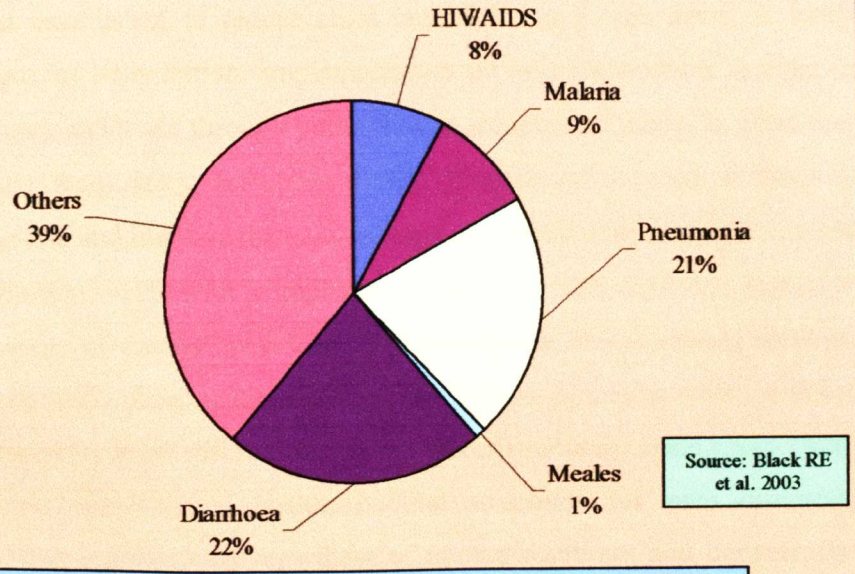
Among the approximately 10 million children under five years old who die each year, 52% of the total deaths are due to diarrhoea (22%), pneumonia (21%) and malaria (9%). About a half of all deaths were associated with malnutrition (Figure 3.1) (Black et al 2003). Six countries had a half of all these deaths and 42 countries for 90%. Projections based on the Global Burden of Diseases shows that these conditions will continue as the leading causes of child deaths until the year 2020 if no substantive efforts are made to control them (Murray and Lopez 1996).

Almost all children dying under five years old are in developing countries and in neglected areas of industrialized countries (Black et al 2003). In these settings, disease and poverty coexist symbiotically and health services are often inappropriate, inadequate and fail to reach those most in need. These inequities in health commonly affect children, a most vulnerable people in the community (Victora et al 2003).

Although every day millions of children are brought to health services by their mothers, many are not properly assessed and treated by the health providers and parents are frequently poorly advised (WHO/UNICEF 1998). Unfortunately, health worker skills are often poor, supplies and equipment are limited and many sick children suffer from more than a single disease (Weber et al 1997; Tulloch 1999; MCE-WHO 2003; Black et al 2003).

Figure 3.1

Major cause of death among children under five years old worldwide, 2000.



53% of all these deaths in 2002 were associated with malnutrition

Appropriate management of sick children under these conditions remains a major challenge. To achieve greater success it is necessary to learn from previous experiences. Many public health practitioners believe that vertical programmes were the most effective way to reduce child deaths in the twentieth but not in the 21st century.

3.3 Vertical programmes and need for a more holistic approach

Vertical programmes, also called categorical or targeted programmes, are designed to address a particular disease or condition with clear objectives within a limited time frame, making use of a specific set of technologies (Mills 1983; Gounder 1998). They basically have three components: 1) they have a specific set of interventions, work with defined objectives, usually quantitative, and relate to a single condition or small group of health problems; 2) the operational focus is on the short or medium term; and 3) they have centralised management and discrete financial budgets (such as staff, vehicles, funds) (Cairncross et al 1997).

Such programmes were widely proposed by the WHO from 1960s to 1980s to tackle the major causes of mortality. The most successful experience using this approach was a

campaign conducted between 1957 and 1977 that globally eradicated smallpox (Gounder 1998). This triumphant campaign pushed the WHO to launch in 1977 the Expanded Programme on Immunization (EPI) which substantially enhanced global vaccination coverage which reduced the incidence of poliomyelitis, measles, diphtheria, tetanus and whooping cough (WHO 1995). In 1980 the Control of Diarrhoeal Diseases Programme (CDD, WHO) was established to reduce child mortality due to diarrhoea. It focused on identifying the signs of dehydration, implementation of oral rehydration therapy and the reduction of diarrhoea incidence through public health measures. Finally, in 1985 the WHO launched the Acute Respiratory Infections (ARI) programme as part of these vertical strategies to standardise and improve the case management of these diseases (WHO 1995).

These programmes were widely implemented in developing countries and contributed to reducing the severity of disease episodes and the number of deaths among children under five years old (Gove 1997). Despite these achievements some problems were identified, such as: 1) vertical programmes were still limited in their effectiveness for some major child health problems; 2) within ministries of health, parallel structures for each disease-specific programme were often implemented regardless of human resources and budgets; 3) senior health workers frequently had to leave their posts to attend workshops and had to provide supervision for many disease-specific middle level managers; 4) programmes were organizationally rigid and did not always reflected national priorities or local approaches, and finally 5) the programmes were designed to deal with specific diseases but many sick children presented with overlapping and multiple symptoms and signs of the major diseases, with misdiagnosis being frequent (Weber et al 1997; Tulloch 1999; MCE-WHO 2003; Black et al 2003). For example, although children with lethargy might have cerebral malaria, meningitis, severe dehydration, or severe pneumonia they were often only treated for the most common diseases in the area (WHO/UNICEF 1997). This is especially true for first-level health facilities which had few drugs, no laboratory tests and no X-ray facilities (WHO/UNICEF 2001).

The need for an integrated approach to managing sick children was recognised in the mid-1990s. The main reasons were: 1) a small number of diseases were responsible for a high proportion of all deaths and co-morbidity was usually present; 2) children could receive treatment for all major diseases, with the correct treatment for one disease but yet die from another unrecognized illness; 3) need to improve efficiency by avoiding duplication of efforts at national, provincial, and districts level in terms of training, supervision and the provision

of essential drugs; 4) need to improve the quality of case management provided by health workers (WHO/UNICEF 1996; Gove 1997; WHO/UNICEF 2001; Black et al 2003).

3.4 Integrated Management of Childhood Illness

In 1995 the World Health Organization (WHO) and UNICEF launched the new initiative called the Integrated Management of Childhood Illness (IMCI) for improving child health and development (Gove 1997; Tulloch 1999). There are three main components to the strategy: 1) improving skills of facility health workers, 2) improving health systems support and 3) strengthening family at community practices. These three are shown in Panel 3.1.

The strategy has three components (See Panel 3.1). The first consists of improving the skills of health workers through training and reinforcement of correct performance. This training is based on a set of algorithms that guide the health worker through a process of assessing symptoms and signs, classifying the illness based on treatment needs and providing appropriate treatment and educating the child's caretaker (Gove 1997; WHO/UNICEF 2001). Panel 3.2 shows a general outline of the approach for children aged 0 months to five years.

Sick children aged 0 months to five years attending a first level health facility are initially checked for danger signs and for the main symptoms of the key IMCI diseases: diarrhoea, malaria, pneumonia, measles and other severe infections. Next, all children are assessed for malnutrition and anaemia, and vaccination status is also verified. Children under two years of age – as well as older children presenting low weight for age – receive nutrition counselling. Other health problems related by the caretaker are then assessed, and the child is classified according to a colour code: pink (immediate referral), yellow (management in the outpatient facility) or green (home management). Separate case-management algorithms are available for children under two months of age. IMCI health worker training emphasizes the integration of curative care with preventive measures, including nutrition and vaccination. A special training module addresses how to communicate effectively with mothers (WHO/UNICEF 1997). The training course was originally designed to last 11 days, including a large amount of hands - on clinical experience (WHO/UNICEF 2001).

The second component of IMCI aims to improve the health systems support for child health service delivery, including the availability of drugs, effective supervision, referral services and the use of monitoring and health information system data (Lambrechts et al 1999).

The third component -known as "community IMCI"- focuses on strengthening family and community practices for child survival, growth and development. In this approach, families have the major responsibility for caring for their children, with success requiring a partnership between health workers and families, with support from the communities. Health workers have to enable families to provide adequate home care for their children and to respond appropriately when their children are sick, seeking timely assistance when required and complying with recommended treatment (Lambrechts et al 1999).

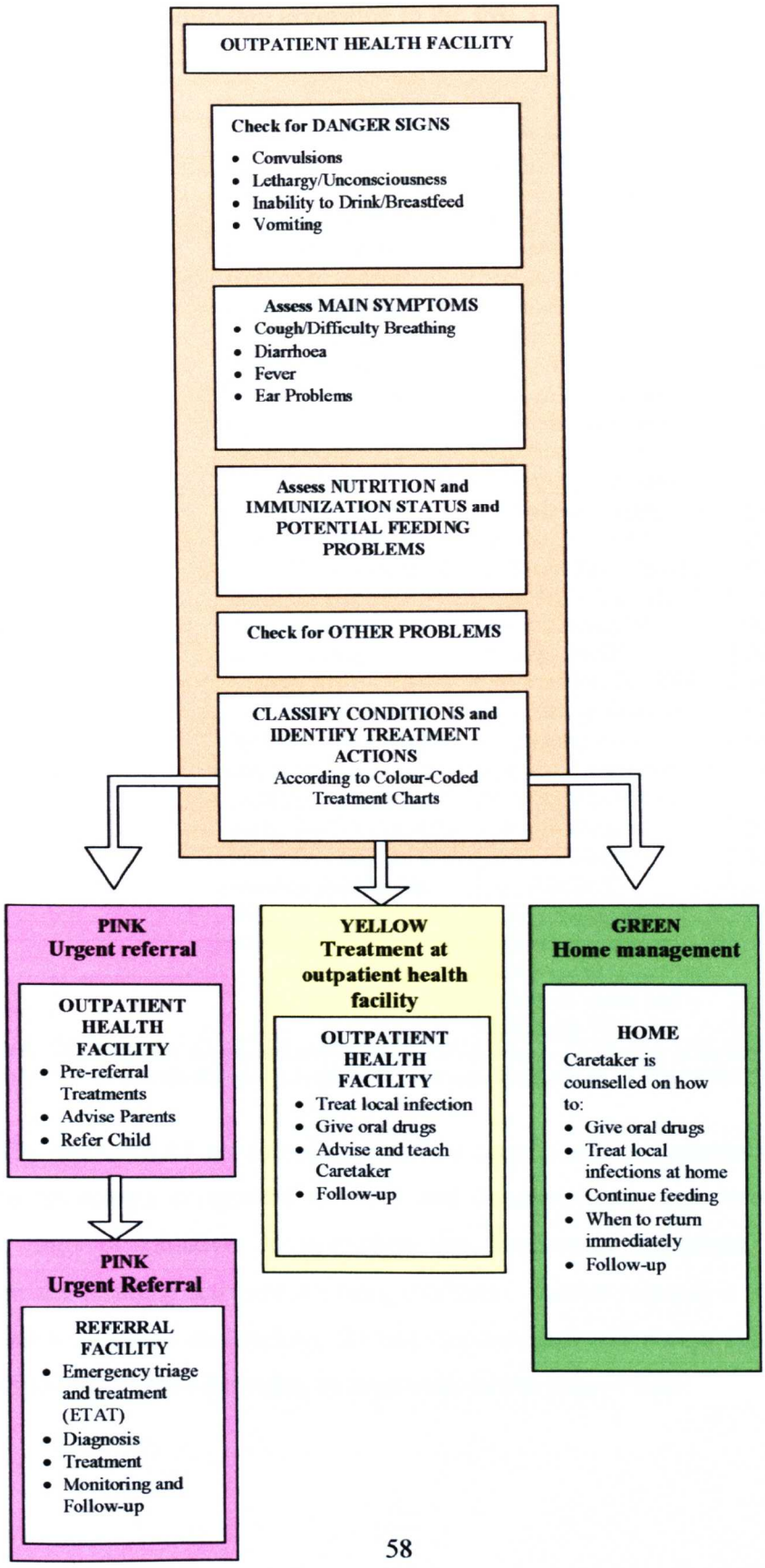
Panel 3.1 Three main components that the IMCI approach.

Improving case management skills of the health-care staff:	
• Assessment:	Child is checked for: - four general danger signs; - presence of cough, diarrhoea and fever; - growth monitoring; - vaccination status; - breastfeeding and complementary foods.
• Correct treatment and counselling:	- referral for children severely sick; - oral antibiotic and/or an antimalarial if necessary; - advise on giving extra fluids and continue feeding; - vaccination for all is given in the health facility; - caregiver has to describe how to give the treatment.
Improving the overall health system:	
• Supervision	- at least one supervisory visit that includes observation of case in the previous four months;
• Drugs, equipment and supplies	Health facility has: - all the essential equipment and materials for IMCI; - has the equipment and supplies to provide full vaccination services.
• IMCI training coverage	- at least 60% of its health workers managing children trained in IMCI.
Improving family and community health care practices:	
• Nutrition	- child <4 months of age is exclusively breastfed; - 6±9 months receives breast milk and complementary feeding; - under 2 years of age if a low weight for age.
• Prevention	- child 12±23 months of age is vaccinated against measles before 12 months of age; - child sleeps under an insecticide-treated net (in malaria areas).
• Home care managements	- sick child is offered increased fluids and continued feeding.
• Care seeking	- child with fever receives appropriate antimalarial treatment (in malaria risk areas); - carer knows at least two signs for seeking care immediately.

According to this component, to improve and to sustain adequate child health the families should: 1) breastfeed infants exclusively for 4 to 6 six months (After IMCI was adopted WHO changed its recommendation to 6 months instead of 4); 2) start introduction of complementary food at the age of six months and keep breastfeeding up to two years or longer (WHO 2001); 3) ensure that children receive adequate amounts of micronutrients (mainly vitamin A and iron); 4) dispose of faeces of all home members safely and wash hands after defecation, particularly before preparing meals and feeding children; 5) take children as scheduled to complete a full course of immunization (BCG, DPT, OPV, and measles) before their first birthday; 6) protect children in malaria- endemic areas, by ensuring that they sleep under insecticide treated nets; 7) promote mental and social development by responding to a child's needs for care, and through talking, playing and providing a stimulating environment; 8) continue to feed and offer extra fluids to children when they are sick; 9) give sick children appropriate home treatment for infections; 10) recognise when sick children need treatment outside the home and seek care from appropriate providers; 11) follow the health worker's advice about treatment and referral for sick children and 12) attend antenatal care (WHO/UNICEF (2001).

Interventions at community level focus on the most significant child health problems. Usually breastfeeding and introduction of complementary food are key issues in infancy. Panel 3.2 below provides an example of how the IMCI strategy aims to deal handle nutrition and related problems.

Panel 3.2 **Options for IMCI case management of the sick child aged 0 months–5 years at a first-level health facility.**



Panel 3.3 How to build on and strengthen community resources to promote improved nutrition according to the IMCI strategy.

Family practice	Sample community resource	Where the resource exists and is effective	Where the resource exists but needs strengthening	Where no resources exists but a need has been identified
• breastfeed infants exclusively for at least 4 and, if possible, up to six months • Starting at about six months of age, feed children freshly prepared energy and nutrient rich complementary foods, while continue to breastfeed up to 2 years or longer.	Mothers support group for breastfeeding.	- Make contact with group to identify how mothers could be referred to support group (*health worker*); - Identify willingness of group to start a second group, and assist this effort (*health worker*); - Visit group periodically to assist with breastfeeding difficulties and identify needs for referral (*health worker, breastfeeding counsellor*); - Strengthen contact between health facility and programme, and identify capacity for participants to identify and refer children who are sick, families at risk, etc. (*health worker*).	- Make contact with group and offer periodic assistance with breastfeeding counselling (*health worker, breastfeeding counsellor*); - Identify what needs to be strengthened, e.g. frequency of gatherings, inclusion of young mothers with guidance of more experienced mothers, support for exclusive breastfeeding of young infants, information on when and how to introduce complementary feeding, availability of help with difficulties (*health worker, breastfeeding counsellor*); - As programme improves, continue tasks under where the resource exists and is effective.	- Identify NGOs, existing mothers support groups, interested grandmother or others who could help gather a mother's support group (*health worker, breastfeeding counsellor*); - Start a group with mothers of young infants who come to health facility (*health worker*); - Assist in planning, identifying appropriate site for group in community, and identify organizing mother, etc. (*health worker*); - As programme improves, continue the tasks under where the resource exists but needs strengthening.

Source: CHD/WHO/UNICEF (1998). Improving family and community practices – a component of the IMCI strategy.
Obs: the recommendation for duration of exclusive breastfeeding was later changed to six months (WHO 2001).

WHO and UNICEF are providing technical support to help countries implement the family and community component of IMCI and document their experiences. They also support a range of initiatives to strengthen this component. Guidelines for collecting information and planning activities are being evaluated. Current research is identifying new interventions to improve care-seeking for sick children and will design community-based interventions to assess their feasibility in large-scale health programmes.

3.5 Evaluation studies on the Integrated Management of Childhood Illness

Research on IMCI can be divided in two periods. The first included testing the guidelines and the ability of health workers to use them, while the second covers the evaluation of IMCI impact by the scientific community in developing countries. These publications may be classified in five categories: validation of algorithms, referral of severe cases, health worker performance, costs and information system.

1) Validation of algorithms: a number of studies have presented evidence that the algorithms were effective in improving diagnosis. A study conducted in the Gambia showed that the guidelines were effective for the diagnosis of pneumonia, malnutrition, diarrhoea, and measles but not for malaria (Weber et al 1997). In Uganda specificity for pneumonia and for very severe disease was high, but sensitivity and positive predictive value were poor (Kolstad et al 1997). In Nyanza, Kenya, sensitivity was high for health workers classifying pneumonia, dehydration in children with diarrhoea, malaria, nutritional status, ear problem and detection of fever by laying a hand on the forehead, but specificity was sometimes very poor (Perkins et al 1997). In Kibaha, Tanzania, two studies were carried out. One of them showed that mothers were able to correctly recognise non-severe and severe malaria and to manage malarial fevers at home and consult a modern health facility according to the guidelines. However, they were unable to make a distinction between 'febrile' and 'cerebral' malaria convulsions (Tarimo et al 2000). The other study was a comparison between two laboratory tests with the IMCI guidelines, which indicated that only 70% of children classified to receive antimalarial drugs by the algorithm in fact had malaria parasitaemia (Tarimo et al 2001). In Cambodia, IMCI guidelines identified children with malaria with a sensitivity of 93% and specificity of 95% (Rimom et al 2003).

Three studies on anaemia showed that it could be correctly diagnosed by simple clinical signs (Zucker et al 1997; Kalter et al 1997; Weber et al 1997). Also in Kenya, severe or moderate nailbed or palmar pallor had a sensitivity of 60% to 90%. This study also suggested that children aged less than 36 months who live in an area with *Plasmodium falciparum* malaria should receive treatment with an effective antimalarial drug if they have pallor (Zucker et al 1997). In Bangladesh, where there are areas with no malaria, palmar pallor did not work as well as conjunctival pallor for the detection of anaemia but in Uganda where malaria is common, both worked well. The addition of grunting as a sign increased the

sensitivity in the diagnosis of severe anaemia from 37% to 80% (Kalter et al 1997). In Uganda, the best predictor for severe anaemia was a definite pallor of the conjunctiva plus pallor of the palms (sensitivity of 80% and specificity of 85%). This study also suggested that pallor can be used as a sign for referring children who may require blood transfusion (Weber et al 1997). A study conducted in western Kenya concluded that even lightly infected preschool-age children without palmar pallor benefited from antihelmintic treatment. However, in this study with a low helminth prevalence and intensity, helminth-infected children could not be identified using the IMCI guidelines (Garg et al 2002).

Bipedal oedema and visible severe wasting can be effectively used to identify children with severe malnutrition but not in those who are low weight-for-age (Bern et al 1997). A study from Bangladesh showed that the guidelines failed to detect bacteraemia from fever. In an area with low malaria prevalence, the guidelines provided antibiotics for the majority of children with bacterial infection (Factor et al 2001). A study in India demonstrated that for children aged 2 and 59 months the IMCI approach is superior to the vertical disease-specific algorithms in terms of diagnostic and therapeutic purposes, but some adaptations were necessary for regional morbidity profiles (Shah and Sachdev 1999). For children aged 0 to 1.9 months, the IMCI algorithm showed good sensitivity but lower specificity for assessing severe illness. This study also suggested that the classification of upper respiratory infections should be refined (Gupta et al 2000). In the Gambia, IMCI guidelines had a sensitivity of 98% and a specificity of 72% to predict meningitis (Weber 2002).

Finally, the algorithms were found to be largely appropriate in the detection of neck stiffness and chest indrawing but poor had agreement for the case detection of dehydration (Kahigwa et al 2002).

The algorithms are in general good for detecting pneumonia, very severe diseases, malnutrition and anaemia. Palmar pallor is a good indicator to diagnose malaria in endemic areas and children needing antihelmintic treatment. However, guidelines were poor at detecting bacteraemia, malaria in non-endemic areas and levels of dehydration. Algorithms appeared to be appropriate in many settings but some adaptations may be needed, mainly in areas where diseases are not endemic.

2) Referral of severe cases: the study carried out in Bangladesh showed that IMCI guidelines were appropriate for correctly referring young infants and children who required hospital admission but they led to the over-referral of patient's not needing hospital

admission (Kalter et al 1997). According to the IMCI module, around 8% of sick children need immediate referral, with malaria and anaemia accounting for 70% of all the referrals. The authors concluded that, in general, decisions to refer seem to be appropriate, but the low referral rate suggests that too few children are actually referred. In addition, the IMCI strategy may need to be adapted in sparsely-populated areas with limited transport, so that more children may be managed at peripheral level, with fewer children needing referral (Font 2002). A study carried out in Niger, Uganda and Tanzania showed that IMCI guidelines are very appropriate for identifying infants and children who are severely sick, for providing first aid and for hospital referral (Simoes et al 2003).

Even if the guidelines detect which children need referral, many are not actually seen at the referral facility. For instance, in Imbabura, Ecuador, the guidelines identified that 42% of the referred children were not taken to hospital, despite the fact that as a group they were very sick, as shown by the fact that 72% of those who reached hospital were admitted and that 7% died from their illness. Health systems need to ensure that referral slips are available and that caregivers will be adequately counselled on illness severity after leaving the first level facility (Kalter et al 2003). Finally, in the Coast Province of Kenya where resources for health facilities are scarce, IMCI guidelines rationalized admissions policy and standardised inpatient paediatric care. However, disturbingly the guidelines failed to detect bacteraemia (English et al 2003).

In general, studies have shown that IMCI guidelines are appropriated and do identify for referral the severe cases. However, studies also reveal that many referred children did not actually reach the referral facility. Effective guidelines could generate a higher demand than the capacity of health services to deal with.

3) Health worker performance: in Niger, performance feedback alone created improvement in health care worker performance and compliance, which improved between 34% to 85% in diverse areas of assessment of sick children (Kelley et al 2001). In Pelotas, Brazil, nutrition counselling and training improved doctors' performance, maternal practices and some aspects of the infant diets (Santos et al 2001). In a central district in Ghana it was found that several danger symptoms were not recognized by caretakers who classified certain illnesses as not-for-hospital and untreatable by modern medicine. Access to health services and frequent use of traditional medicines was identified as a serious limitation for the future of the strategy in the region (Hill et al 1987). In Nigeria use of IMCI guidelines actually led to an increase in

perceptions. An average of 4.5 drugs per patient was prescribed by the trained health workers compared to 2.3 drugs per patient amongst nonusers of IMCI guidelines (Wammanda et al 2003). However, a study carried out in four rural Tanzanian districts demonstrated that children living in IMCI districts received better care than those living in districts with no IMCI. Health problems were more carefully assessed and were more likely to be diagnosed and correctly treated. Also, their caretakers were more likely to receive appropriate counselling and reported high levels of knowledge about how to care for their sick children (Schellenberg et al 2004).

IMCI algorithms largely improve health worker performance in case-management. Children attended by IMCI trained health workers received more appropriate treatment and also the knowledge and practices of their caretakers improved substantially. However, low access to health services, extensive use of traditional medicines, difficulties mothers have in recognising some danger symptoms and lack of confidence in modern medicine remain as constraints to the strategy.

4) Costs: drugs costs were evaluated in Uganda, Kenya and Bangladesh. In Uganda, the guidelines were able to achieve substantial saving in drug costs, to reduce hospital referrals and the use of hospital impatient resources, but the classification errors led to an underestimate in the apparent severity of illness (Kolstad et al 1997). In Kenya, the guidelines helped identify a greater number of illnesses requiring treatment, mainly anaemia and pneumonia. The costs per patient for treating these illnesses was US$0.23, US$0.16, US$0.39 respectively according to the national government and IMCI cost guidelines. These differences between IMCI costs can be attributed to type of medicine, i.e. tablets or syrup, and dosage (Boulanger et al 1999). In Bangladesh, if the IMCI guidelines were used at the first level facilities about US$ 4 million could be saved on the cost of drugs for the whole country compared with the current prescription of medicines (Khan et al 2002). Finally, In Nigeria, treatment costs using traditional methods was five times more expensive than using methods advocated by the IMCI guidelines (Wammanda et al 2003).

The use of IMCI algorithms reduced the number of medicines prescribed, number of doses per day and time on treatment. Also, the guidelines increased the use of tablets and syrup. These changes reduced drastically drug costs in different countries.

5) Information system: disagreements between the IMCI classification system and existing health information systems (HIS) were also identified (Rowe et al 1999). The new system proposed by the strategy caused confusion and adversely affected health worker performance. For example, in areas endemic for malaria, a child with fever could be classified as having 'malaria' whereas it might be suffering from respiratory infection or dysentery. Other problems included the absence of some categories in the health information system. For many diseases classified by IMCI, such as persistent diarrhoea and dysentery, the corresponding categories did not exist in the HIS (Rowe et al 1999).

Classification systems used by IMCI and HIS have not necessarily been incompatible but it can affect health worker performance and can provide a wrong prevalence for some type of disease.

Although the international response to IMCI has been in general positive, substantial concerns have also been indicated. A national WHO/IMCI working group stated that the implementation of the strategy implied a review and updating of paediatric care in the country or area (WHO/UNICEF 1997). Also, the IMCI training course did not cover all paediatric situations and there were overlaps with other programmes. Despite this, the demand for the IMCI strategy and for technical assistance has been high (WHO/UNICEF 2001). Requests have been made for inclusion of several other conditions such as newborn illness and HIV infection into the strategy (Ghosh 1997; Nicoll 2000; Garg et al 2002; Kalter et al 2003; Hill et al 1987). It has also been suggested that IMCI implementation at country level can help attract national and international investments to improve child health (Costello 1999). Other claims are that the strategy is superior to conventional routine practices, that disease algorithms have potential to improve health workers skills and self-confidence, and that IMCI could reduce inequities in child health (WHO/UNICEF 1997; Tulloch 1999; Costello 1999; Nicoll 2000; Oluwole et al 2000; Molyneux 2001; Patwari and Raina 2002).

In conclusion, evaluations studies on IMCI implementation have suggested that the strategy has considerable potential to improve case management for the main causes of deaths among under five years old children in developing countries. The guidelines seem to be sensitive but are less specific, which could lead to overtreatment and unnecessary hospital referrals and admissions. Improvements in the IMCI strategy are necessary, especially for the identification of anaemia in areas with low prevalence of malaria, identification of severely ill children and bacteraemia using fever as and indicator.

3.6 Multi-Country Evaluation of Integrated Management of Childhood Illness

The Multi-Country Evaluation (MCE) study of IMCI Impact, Costs and Effectiveness is coordinated by the Department of Child and Adolescent Health and Development of WHO, Geneva. Its aims include: 1) to evaluate the impact of the IMCI strategy as a whole on child health, including child mortality, child nutritional status, and family behaviours; 2) to evaluate the cost-effectiveness of the IMCI strategy and 3) to document the process and intermediate outcomes of IMCI implementation, as a basis for improved planning and implementation of child health programmes (MCE/WHO 2002). The MCE works in collaboration with Ministries of Health, universities and bilateral agencies. Its main core funding has come from donor agencies and more recently from the Bill and Melinda Gates Foundation.

From August 1998 to February 2002 WHO staff members and consultants carried out 24 visits to 12 different countries. These visits identified the most important constraints for IMCI implementation and expansion within countries and were published in the 2002 MCE Annual Report 2002 (WHO/MCE 2002). A summary of these limitations are showed in the Panel 3.4 below.

Weak supervision for health workers was identified as the most common problem in the countries visited followed by lack of adequate referral facilities and high rates in the turnover of staff trained. Low utilization of public services and slow scaling up of training and/or implementation of the IMCI strategy were also identified as important limitations.

The report showed clearly that IMCI had problems inherent in all three components, but especially at the community level. The key messages had not achieved high levels of coverage even in communities within the limited geographical area where IMCI was being implemented. The report also demonstrated that where IMCI is most needed, health system tend to be weakest and least likely to be able to achieve adequate coverage levels within a reasonable time frame. These findings reinforce the need for examining strategies for improving the community component of IMCI.

Panel 3.4 Summary of status of IMCI implementation at the time of MCE country reviews, 1998-2002.

Country	Date of IMCI country review	Health system issues found in the country	The most important health system issues identified by the MCE team
Bangladesh	1999 – 2002	1, 2, 4, 5 and 8	1. Low utilization of public services; 2. Weak supervision; 3. High proportion of neonatal deaths not addressed by IMCI; 4. High rates of staff turnover; 5. Lack of adequate referral facilities; 6. Existing regulations contradict IMCI guidelines; 7. Health sector policies not consistent with IMCI; 8. Slow scaling up training and/or implementation; 9. Poor drug availability and 10. Low staff motivation.
Bolivia	1999 – 2000	2 and 4	
Brazil	1998 – 2001	2, 3, 4, and 10	
Cambodia	2001	1, 2, 5, 8 and 10	
Kazakhstan	2000 – 2001	6	
Kyrgyzstan	2000	6	
Morocco	1990	2, 3 and 7	
Niger	2002	1, 2, 4 and 5	
Peru	1999 – 2002	2, 3, 4 and 8	
Tanzania	1998 – 2002	2, 5, and 8	
Uganda	1999 – 2001	1, 2 and 5	
Zambia	2000 – 2001	5 and 9	

The WHO-MCE investigators are evaluating the effectiveness of IMCI. Six papers produced by this group are forthcoming. The papers describe results from implementation of the strategy in Bangladesh, Brazil, Peru, Tanzania and Uganda. Here also the papers were classified in categories: 1) health worker performance, 2) costs, 3) implementation.

In examining health workers performance studies in Brazil, Tanzania and Uganda antibiotics were more appropriately prescribed for sick children by health workers who have been trained in IMCI compared with health workers not trained in the strategy. Also, health care workers trained in IMCI provided better counselling for caretakers regarding how to give the drugs at home and the importance of completing a full course of antibiotics compared with health care workers not trained (Gouws et al 2004). The same health facility surveys carried out in these countries showed that the quality of care provided to sick children attending first-level health facilities was significantly improved if the health care professional had also received training in IMCI compared to health workers who had not been trained. Significant differences were identified in the assessment of the sick child, classification of illness, and treatment of the child, as well as in communication with the caregiver. The authors concluded that IMCI training in case management significantly improved health worker performance in Brazil. Nevertheless, all studies showed that there remained room for improvement among trained workers. Also, the health facility surveys

showed problems with supervision and referral (Amaral et al 2004; Schellenberg et al 2004; Pariyo et al, submitted for publication).

In Tanzania, the cost per child of caring for under-fives in IMCI districts was US$ 11.19, or 44% lower than in the comparison districts ($16.09) while hospital-level costs were 2.5 times higher in comparison districts. This occurred due to higher number of admissions per child in the non-IMCI districts than in IMCI districts, probably because of improvements in quality of care and drug availability for under-fives at IMCI primary facilities, which prevented more children from being admitted subsequently to hospital (Adam et al 2005).

Concerning implementation, in Peru the Multi-Country Evaluation of IMCI demonstrated that the number of IMCI trained health workers increased up to 1999, but decreased in 2000 and 2001. In addition, 43% of trained staff had already been rotated to other districts by 2001. In general, national and district level IMCI-specific planning and budgeting activities were poor. At district level there were no IMCI coordinators and IMCI ran side by side with vertical programmes – such as those for diarrhoea, acute respiratory infections and others – that addressed the same child health problems. The average annual number of supervisory visits was only 0.20 per health facility per year, but the supply of drugs, vaccines and equipment was reported as good (Huicho et al 2005). Further results from MCE are expected in the near future.

3.7 Questions on the future of Integrated Management of Childhood Illness

By the end of 2003, the IMCI strategy had begun to be implemented in 102 countries with 20 in the introduction phase, 33 in the implementation phase and the other 49 in the expansion phase. Early discussions were taking place in at least six other countries (WHO/CAHD 2003).

There are many unresolved questions about IMCI for all three components: health workers skill, health system support and child care at the family and community levels. There are research questions in the latter area are the main focus of this study. Many of these research issues were explored in the meeting called "Research to Support Household and Community" held in Baltimore, USA, in the beginning of 2001 (Kelley and Black 2001). Twenty research questions were selected and divided in three areas: health system, community, and specific diseases/situations. They are presented below.

1) Health system:

   a) How to overcome barriers to better care-seeking behaviour?

b) How to improve care-seeking from formal health care providers?

c) How can adherence be improved to assist health managers in developing tailored responses?

d) How to evaluate the effectiveness of CHWs?

e) What is the best way to deliver packages of proven interventions on a large scale?

f) How to maximize coverage and improve ways to offer the strategy in the private sector?

2) Community:

a) How to extend the IMCI strategy into the community through CHWs?

b) How to maintain quality of CHWs performance (volunteers and paid)?

c) How to involve communities in analyzing the costs of health care provision?

d) How to improve mothers' ability to recognize signs of childhood illness?

e) How to transfer management skills to community groups?

f) How to establish accurate costs for community IMCI activities?

g) How to train mothers in child health at the community level?

h) How to increase community input at the facility level to improve the quality of and access to health facilities services?

i) Which interventions are effective in reducing child mortality and morbidity at the household and community levels?

3) Specific diseases/situations:

a) How can health facility and community based interventions best promote feasible and sustainable changes in dietary and feeding practices that will improve children's nutritional status and reduce anaemia?

b) How to increase the regular and effective use of insecticide-treated bednets to reduce child mortality from malaria?

c) How to reduce indoor air pollution and what is the magnitude of the achievable reductions in morbidity due to pneumonia?

d) How to evaluate attitudes and practices on infant feeding during diarrhoea, the types of fluids used orally for rehydration, and barriers to exclusive breastfeeding?

These questions show that there are many aspects of IMCI that still need to be clarified. The answers are important both for achieving improvements the IMCI strategy and

consequently in child health.

3.8 Advantages and limitations of Integrated Management of Childhood Illness

The main advantage of the strategy is the holistic and integrated approach, seen as an improvement from the earlier vertical programmes. Another advantage is that IMCI attempts to improve three essential components in child health: health worker skills, health service system performance, and caretakers' knowledge and management of sick children. There is a sound scientific basis for adopting the strategy because of the high frequency of co-morbidity in developing countries, as well the use of validated algorithms.

The strategy is focussed on poor countries with high underfive mortality. Most of these settings, however, present important health system constraints. Resources are scarce, care providers have limited skills, and there is a lack of basic and refresher training, inadequate and inappropriate supervision, poor staffing patterns, limited accessibility to services, long distances, paucity of drug supplies and deteriorating primary care infrastructure (Ghosh 1999; Costello 1999). Also, there is poor inter-sectoral coordination and government policies are often inconsistent (Kelly and Black 2001).

Other authors claim that the strategy should be integrated with reproductive and maternal and child health services (Nicoll 2000), as such integration could increase the success of IMCI. In addition, common diseases such as skin infections are not addressed by the strategy (Weber et al 1997). Care for the newborn should also be included as part of the strategy because it contributes substantially to the infant mortality rate (Ghosh 1999). Although IMCI is proposed as a flexible strategy to which new diseases and interventions can be added, in practice this has not happened on a wide-scale basis. Exceptions are the inclusion of dengue in Vietnam, HIV/Aids in South Africa, asthma in Latin America and accident and neuropsychomotor development in Eastern Europe (Bryce and Victora 2002).

The future of the IMCI strategy depends on its ability to avoid the mistakes made by other global initiatives in the past. From the 1970s primary health care (PHC) and community health workers (CHWs) were promoted as the most effective and efficient way to deliver services to unserved and underserved populations (WHO/UNICEF 1978). However, PHC started the 21st century as one of the most underdeveloped and least effective medical disciplines (Horton 1999). Many CHW programmes have been abandoned in Colombia, Jamaica, Tanzania and Sri Lanka (Walt 1990) and CHWs are not yet considered as health workers in many countries (Berman et al 1986; Walt 1990; Kahssay et al 1998). However, at

the close of the twentieth century appropriate health care continues to be a dream for many people in developing countries.

The relevance of these learned lessons from vertical programmes in the past need to be carefully examined by the IMCI strategy if it is to succeed in the future.

3.9 Effective interventions to improve child survival

The main causes of child mortality are widely known. Many effective interventions such as breastfeeding, insecticide-treated nets, complementary feeding, water sanitation and hygiene, hib vaccine, zinc supplementation, vitamin A, antenatal steroids, clean delivery, measles vaccine, tetanus toxoid and antimalarial intermittent preventive treatment in pregnancy were identified. Among treatment interventions, oral rehydration therapy, antibiotics for pneumonia, dysentery and sepsis, antimalarials, zinc and vitamin A were also identified as having enormous potential to improve child survival rates (Jones et al 2003). However, global coverage for most interventions is below 50%. If these interventions were universally available, 63% of child deaths could be prevented (Bryce et al 2003). These findings show that the interventions are not being delivered to the mothers and children who need them. In addition, there is some evidence that the child survival effort has lost its focus. For instance, prevention and management of children with AIDS demands a large amount of money to save a small proportion of child deaths while a few cents spent with ORT or promoting breastfeeding could save millions of children every year (Jones et al 2003).

3.10 Conclusions

The IMCI strategy has enormous potential to improve child health worldwide (see Panel 3.5). This potential comes from its scientific basis and its ability to handle multiple diagnoses in a simple and effective way. The mixed nature of the strategy, based on vertical and horizontal programmes, has two sides. As a set of vertical programmes, the strategy can use previous experience to increase the impact of each intervention. As a horizontal programme however, the initiative can confront persisting problems in health services in the developing world. Also, the strategy assumes that family and community practices are key to the strategy but activities at this level have been minimal. It seems to have been assumed that counselling provided by health workers during medical consultations will be enough for mothers to understand and manage appropriately their children's problems.

Finally, as observed with PHC and CHWs, early scientific publications may turn out

to be more favourable to the strategy than later evaluations. The Multi-Country Evaluation studies are showing that the strategy can fail exactly in the places where it has the highest potential to achieve an impact. Evaluation by the MCE is showing that IMCI in the community is a fertile area for future research, as it has potential to reduce inequities in child health. Integration of community and clinical IMCI components, which is the subject of the present thesis, is a priority research area.

Panel 3.5 Key messages about Integrated Management of Childhood Illness.

- **The number of deaths among children under five years has been reduced in the last few decades, but in the poorest countries up to 70% of children continue die from five diseases that are easily prevented and treatable;**
- **Because children usually present with overlapping and multiple symptoms of the major diseases, an integrated approach is required;**
- **The IMCI strategy encompasses about 80%-90% of the causes of medical consultations among children under five years old in developing countries;**
- **Children brought to health services are often inadequately assessed and treated by health providers and their parents are poorly advised;**
- **The community component of IMCI, in reality, does not exist and needs much more development;**
- **Like many other previous health programmes, initial expectations that IMCI could reduce mortality may be more optimistic than the evidence can support;**
- **The Multi-Country Evaluation of IMCI is already pointing out key problems that, unless acted upon, could severely limit the potential global health impact of IMCI.**

3.11 References

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Chapter Four:

Brazil, community health workers and Sergipe State

4.1 Brazil

Brazil is the largest country in Latin America. It covers 8.5 million square kilometres, has 4,500 thousand miles of coastline and shares borders with all countries in South America except Ecuador and Chile. The total population is about 185 million inhabitants, with three quarters of them living in urban areas. The official language is Portuguese and its capital is Brasília. The Federative Republic of Brazil has 26 states, about 5,800 municipalities and the Federal District (the seat of government). The country is divided into five major regions. The north, the largest region, occupies 45% of the national territory, but has only 8% of the population, the southeast occupies only 11% of the country but has 43% of the total population. The South is the smallest region with 7% and 15% while the Northeast has 18% and 28% respectively (IBGE 2005).

Figure 4.1: Brazil in Latin America.

4.2 Brief political history

Colonized by Portugal for three hundred years, Brazil became independent in 1822. Despite this in the following 70 years it continued being governed by the acting Portuguese emperor and later by his son, Don Pedro II, who was the most influential public administrator in Brazil. He abolished slavery, created many schools around the country and opened the country for trade with other nations. Meanwhile in 1889 an army general helped establish the Federal Republic of Brazil and Don Pedro II was sent to Portugal. In 1930, parliament was closed and Brazil was governed by dictatorship until 1945, when parliament was re-opened and elections were re-established. In 1964 the president resigned. At this time industrialization had started, together with a rural population exodus and an increasing external debt. Since the vice president was believed to be too close with communist regimes in China and Cuba, the Brazilian Army supported by the United States of America, assumed power again until 1983. In this period, parliament remained open but only to serve the military government. This period was characterised by huge investments in infra-structure, such as roads and industries, establishment of public universities, as well as torture and killing of the opposition to the regime and press censorship. In 1984 a civilian president who was the head of political party that gave support to the military regime, was installed. At the end of his term, the inflation rate had risen to 3% per day or about 2,600% per year! In 1989 a new president was elected but two years later he was impeached for corruption. The former minister of economy was then elected president and three years later using illegal procedures he changed the constitution and was elected for a new term. During these two terms, food prices decreased, national programmes in health and education were implemented, and privatization policies were put through. Inflation remained under control and salaries of public employers were stabilised. However, internal and external debit increased four and two times respectively and the Brazilian currency money was devaluated by 66% in this period (Banco Central 2002). In 2003, Luis Inácio Lula da Silva, a metallurgic worker with only a few years of schooling was elected to be the new presidential leader. His first act as president was to establish a programme to eradicate famine countrywide that covered 45 million Brazilians, mainly in Northeast area where he originally came from.

Brazilian political history is characterized by changing presidents, by military rule and by small and powerful groups that kept political power for many years. Repression using torture of civilians, together with press censorship and corruption among politicians, were wide spread. With the current federal government, people hopefully believe that this cycle

may be ending.

4.3 Main social and health indicators

Although Brazil's present per capita income is about US$5,000 per year, one of the highest in Latin America, there are enormous inequalities. Nearly one third of families have less than US$40 dollars per capita per month. This difference between rich and poor has increased in the last decade making Brazil one of the most unequal countries worldwide. Its Gini coefficient, a commonly used measure for inequality, is 59. In this index, zero signifies perfect equality and 100 means that one person holds all the income (World Bank 1999). Unemployment country-wide has remained at about 10% but for metropolitan areas it is about 16%. In 2004, inflation was 8.6%. Illiteracy among people 15 years or older is about 15% on average, varying from 7% in the south to 33% in some states of the northeast region. Similarly, the infant mortality rate in 2004 averaged 27.6 per thousand, varying from 15.4 per thousand in Rio Grande do Sul state to 57.7 per thousand in the state of Alagoas (IBGE 2004a; IBGE 2004b; Messias 2003). Immunisation coverage during the first year of life is nationally about 90% falling to 85% in the poorest regions. Life expectancy has reached 73 years for women and 65 for men, with people in the south living, on average, seven years longer than those in the Northeast region (IBGEa 2004). In 2002, 27% of deaths were attributed to diseases of the circulatory system, 16% to infectious diseases, 13% to accidents and injuries, 12% to neoplasms, 4% to perinatal infections and 28% to unknown causes. About 10% of all deaths occurred in people who did not receive any type of medical assistance (IBGE 2003). In 2004 the total financial resources available for health from the public sector was about US$60 per capita per year (11 billion US dollars/185 million inhabitants) (MS 2005).

Brazil is one of the most unequal countries in the world. A small number of people are rich while a large number have money only for basic living, with many living below the poverty line. The mortality pattern shows a mix of that present in industrialized (diseases of circulatory system and neoplasms) and developing countries (infectious diseases such as diarrhoea, pneumonia and tuberculosis). Brazil has one of the highest immunization coverages among children under five years old and was one of the first countries to eradicate poliomyelitis and probably also measles.

There is clear evidence that the Brazilian health system improved substantially in the last century in terms of access and availability. However, the quality of care provided seems

to be poor because many professionals do not work in adequate or appropriate conditions. The financial resources available are not enough and health services facilities and professionals are concentrated in areas where health indicators are better (IBGE/DPE/COPIS 2004).

Figure 4.2 Map of Brazil showing Northeast Region.

4.4 Brazilian health system

Brazil's public health care services were created at the end of nineteenth century and were the responsibility of the Ministry of Health until the 1940's, when they were transferred to the Ministry of Social Security. This was done because this ministry was responsible for providing medical care for workers. In this period, its actions were concentrated on the control of epidemics and the provision of care for children and pregnant women (Ruffino-Netto and Souza 2001). When the rural exodus occurred in the 1960's, many people not in the

formal job market were not covered by the social security medical care services. For this reason, in 1975 the system was reorganized and some responsibilities for providing health care were given to the municipalities. At this time, national programmes on food and nutrition and actions in health and sanitation were implemented. In 1977, the Ministry of Social Security created the National Institute of Medical Care and Social Security to promote a more rational use of its health funds (Ruffino-Netto and Souza 2001). Nevertheless, in the 1980's a large proportion of the population, especially people from rural areas and the periphery of big cities, still had no access to appropriate health care. In 1986, the Eighth Health National Brazilian Conference deliberated that health services should be provided for all citizens and that health services should be reorganized into the Sistema Único de Saúde (SUS or Unified Health System), which would combine the health care services provided by the Ministry of Health and the Ministry of Social Security (Braga 1985; Mendes 1996; Ruffino-Netto and Souza 2001). In 1988 the National Assembly established that:

> *"... health is a right for all and a duty of the State, guaranteed by social and economic policies aimed at reducing the risk of illness and other health problems and assuring universal and equal access to services and facilities for the promotion, protection and recovery of health."*
>
> ***Article 196, Federal Constitution of Brazil, 1988.***

Political and administrative decentralisation as well as community participation in health management issues were at the core of this reform (Mendes 1996). The Sistema Único de Saúde (SUS) was transferred from the Ministry of Health to the municipalities, for the management of health services, while federal and state governments provided funds to the municipality level. At the end of 2000, almost all Brazilian municipalities had assumed responsibility for offering basic health care (Ruffino-Netto and Souza 2001). For the implementation of the reform, health councils were organized at municipal, state and national levels to regulate and to discuss problems related to the health sector (Braga 1985; Mendes 1996).

Data from 2003 showed that in Brazil there were 7,346 hospitals of which 69% are private with the rest belonging to the public sector and there were about 715,000 beds (28% public) or 4.4 per 1,000 inhabitants, 1,350 blood banks, about 63,600 outpatient care facilities (80% public). Governments (state or municipality) are large buyers of services from private hospitals. Also, there are in the country about 400,000 doctors and 95,000 nurses

(MS/SIA/SUS 2004).

About two thirds of health facilities and professionals were concentrated in the South and Southeast (IDB 2002). High technology private care is available to the rich while inadequate public care is available for the poor. Limited financial resources have been over-concentrated on health care in the hospital sector and health professionals are generally inappropriately trained to meet the needs of the community (Haines 1993). In 1991, the Brazilian government launched the PACS (Community Health Workers Programme) to reach unserved people in rural areas and the periphery of big cities and in 1994 it launched the PSF (Family Health Programme – Programa de Saúde da Família) to reorganize primary health care in Brazil. In 2004, these programmes cost about 2.1 billion US dollars per year and are presented later in more detail.

Substantial improvements occurred in the Brazilian health system in the twentieth century. These changes improved access and availability of health care for the population, especially unserved and poor people. However, available resources are not enough and priority has not been given to people in greatest need. Brazil did not participate in the worldwide implementation of community health worker (CHWs) programmes in the 1970s nor in the global decline in investments in CHWs in the 1980s. Only small and isolated experiences were carried out around the country.

The first national programme with CHWs was implemented by the Pastoral da Criança (Pastorate of the Child), a Brazilian NGO associated with the Catholic Church, at the beginning of the 1980s. Next came the Health Agents programme in Ceará State starting in 1988 and the national Community Health Workers Programmes in 1991. The latest reform was the establishment of the Family Health Programme by the Federal Government in 1994. Each of these programmes is summarized in the next sections.

4.5 Pastoral da Criança (Pastorate of the Child)

The first large experience with CHWs in Brazil was implemented by the Federal Confederation of the Brazilian Bishops from the Catholic Church in 1983 in Florestópolis, Paraná State, Southern Brazil. The Pastoral da Criança is the biggest NGO in Latin America dealing with maternal and child health. It started with Dr. Zilda Arns, a Brazilian paediatrician who assumed that mothers could learn more about health of their children. The Pastorate of the Child aims to offer care and counselling for mothers living in the poorest areas. Solidarity is the main supporting component of their action (Pastoral da Criança 2003).

This programme, also named Pastoral da Criança or only Pastoral, trained local volunteers to treat diarrhoea, acute respiratory infection, and to encourage immunization, breastfeeding and monitoring infant growth and developing for children under six years and pregnant women for antenatal care. They also provided counselling about nutrition for pregnant women and infants in the first year of life. Nutritional counselling was based on utilization of peel of fruits, legumes and exclusive breastfeeding. In the middle of 1990s, the Pastoral started to work with income generating projects and in education by providing literacy for young and adults (Pastoral da Criança 2005).

By the end of 2004, the Pastoral da Criança was active in all Brazilian States and in 3,700 municipalities (about two thirds of the total). There were about 137 thousand volunteer CHWs or leaders of the Pastoral da Criança as they are called, were visiting monthly over a million families and following 1.9 children under six years old and seeing about 87 thousand pregnant women. In addition, 1,750 projects to improve family income had been created and about 37,000 adult and young people were receiving regular classes to become literate (Pastoral da Criança 2005).

To achieve this coverage, the Pastoral da Criança gave priority to children with the worst health conditions (Pastoral da Criança 2005). For this reason, the periphery of big cities and rural areas were preferentially chosen for intervention. The leader of the Pastoral act independently of other local structures or sectors such as those for health or education. If necessary, they refer a sick child or a pregnant woman to the local health service but, differently from other programmes, they do not work as a link between the health sector and the community. They aim to work independently with volunteers. Also, in terms of time involved, the Pastoral is not the main activity in their life. Some of them have permanent jobs and work for the Pastoral only in the early evening or at the weekends.

Each CHW from the Pastoral da Criança, almost all women, offer the set of care previously mentioned for an average of 20 families living near of their house. Health care offered for each child under six years of age and pregnant women are recorded and sent monthly to the Diocese centre for regional co-ordination. These records are immediately sent to the national co-ordination of the Pastoral, in Curitiba, the capital of Paraná state, southern of Brazil. This system is very simple and rapid. For this reason, for instance, fluctuation in the IMR around the country is easily identified by the Pastoral notification system before any other source.

Data collected from the Pastorate system shows that the IMR among children

followed by the them fell from 28/1000 in 1994 to 17/1000 in 2000, based on Pastoral surveillance, while for Brazil as a whole from 1994 to 2000, the IMR decreased from 56/1000 to 34/1000 (UNICEF 2001). There is no specific evaluation study demonstrating the impact of Pastoral in the community. A study carried out in São Luis and Timbiras, two municipalities in the Maranhão State, Northeast of Brazil, showed that mothers attended by leaders of the Pastoral had, in general, better knowledge about infant survival and the incidence of low birth weight among their children was about 40% lesser than in their neighbours not followed by the Pastoral da Criança (Victora et al 1991). Another evaluation Criciúma, Santa Catarina State, southern Brazil showed that in fact the Pastoral prioritise the poorest amongst the poor (Neumann et al 1999a). In this evaluation, after controlling for many confounding variables, children followed by leaders apparently had longer total breastfeeding, later introduction of bottle-feeding, higher frequency of growth monitoring visits and higher availability of spoon for ORT preparation at home. Meanwhile, no significant association was observed between participation in the Pastoral and duration of predominant or exclusive breastfeeding or correct management of diarrhoea diseases (Neumann et al 1999b). There is no evaluation study demonstrating the impact of Pastoral interventions on infant morbidity or mortality among those followed by the Pastoral da Criança.

In 2004, the Pastoral da Criança cost about US$11.4 million or US$6 per child per year. About 75% of this total came from the Brazilian government, mainly from Ministry of Health (61%). The rest came from the UNICEF, Brazilian Bank for Development (BNDES), national privates companies and a small part from overseas donors (Pastoral da Criança 2005).

According to the national coordinator of the Pastoral da Criança, their achievements can be attributed to five points: 1) a limited number of families followed by the leader of the Pastoral in a limited area; 2) management of resources mainly at the local level (Diocese); 3) direct links with the community and co-ordination through a national records system; 4) support from the civil society, mainly from the Catholic Church, and 5) dedication from the leaders of the Pastoral to their job. All information presented here was obtained from the website http://www.pastoraldacrianca.org.br/portugues/index.htm and with Dr. Nelson Neumann, adjunct national coordinator of the Pastoral da Criança).

In conclusion, the ability of the Pastoral to reach people in very isolated areas has been impressive. It has been well accepted by local communities. However, as there has been

no valid research or evaluation study demonstrating its impact on maternal and child health indicators, the claims for success have been based mainly on data sent from dioceses who lack proper quality controls. Trying to solve this problem, the Pastoral da Criança has hired independent evaluators to identify the main problems of the programme and to determine the effectiveness of their community workers.

4.6 Programa de Agentes de Saúde do Ceará (Health Agents Programme in Ceará State)

The second large programme with CHWs in the country was implemented in 1988 in Ceará State located in the Northeast region, the poorest region in Brazil. This programme was implemented as part of an emergency employment-creating strategy responding to the periodic droughts that occur in this region (Andrade 1998).

In a short period of time, Ceará's programme recruited and trained about 6,000 CHWs offering basic health care in maternal and child health through home visits. They work under temporary contracts without fringe benefits or job security. Their salary, about US$ 60 a month, is paid by the state government. Their tasks include assistance and advice with respect to ORT, immunization, antenatal care, breastfeeding, and monitoring growth. They also work to strengthen links between community and local health service (Tendler 1998).

By 1994, seven years after the programme began the IMR and the prevalence of deficit height-for-age at the state level had been reduced by 35% and 53% respectively, antenatal care attendance had increased by 28% and vaccine coverage by 50% (MacAuliffe et al 1994; Cufino Svitone et al 2000). This programme cost about US$8 million a year, with 80% being used for payment of CHWs' salaries (Tendler 1998).

Results attributed to this programme were widely noted throughout Brazil and internationally. In 1993 the Health Agent Program in Ceará State won the UNICEF Maurice Pate Award in New York, an annual UNICEF prize for successful progress towards child health and well being around the world. In the 27 years since this prize was established, the Ceará government was the first one to receive it in Latin America.

Just as the barefoot doctors had fired the health imagination in Africa and Asia, the Health Agent Programme in Ceará and the UNICEF prize reached the attention of various Brazilian governors and mayors. In the middle of 1990s, Ceará state had the best child health indicators in the Northeast region, while in 1987 it had been one of the worst. This change was attributed to the CHW programme and mainly for this reason similar programme with

CHWs spread quickly to many other municipalities in Ceará State and to others municipalities around the country.

More recent analysis suggests that this success was achieved mainly because Ceará occupies a peculiar situation in Brazil. It has had four consecutive governors from the same political party, with one serving three terms. This guaranteed the continuity of many programmes in the health sector, which were considered a priority. In addition, impressive improvements were achieved in other areas such as education, sanitation and employment. Although there were overall improvements in nutrition and mortality indicators, the gap between rich and poor was not reduced (Victora et al 1999).

Despite the absence of an evaluation using comparable control groups, Ceará's programme remains the best Brazilian example in the public sector for extending basic health care for all. This accomplishment was the most important determinant in the decision by the Federal Government to implement a national programme with CHWs in the early 1990s.

4.7 Programa de Agentes Comunitários de Saúde (Community Health Worker's Programme)

The Brazilian Ministry of Health launched the Programa de Agentes Comunitários de Saúde (Programme with Community Health Workers or PACS) in 1991. This decision was taken following experience in a short but triumphant campaign to prevent and to control the cholera epidemic in the North region and the success of the CHWs programme in Ceará State.

To be a CHW in the PACS, the person should be at least 18 years old, educated and literate, have lived in the community where they intend to work for at least two years, and able to dedicate themselves full-time to their activities. The CHWs should enable the population to care for their own health and to help in the creation and consolidation of the local health system. In addition, they should help solve problems in primary health care, to work in an integrated manner with the community and the local health system, to increase the access of the population to health information and to help communities create their own health programmes (MS/COSAC 1999).

CHWs are trained by a team from the State Department of Health. In theory, the initial training has an average duration of two weeks and refresher courses are held every three months (MS/COSAC 1999). Each CHW is expected to visit, on average, 220 families, which represents about 750 people, every month. This represents approximately 10 routine

visits per working day. In each family they visit, there are up to 26 different tasks to be performed. In addition, there are a number of tasks within the health facility (participating in meetings, keeping records of programmes for pregnant women and under-five children, chronic disease patients, etc), as well as many non-routine home visits (checking up on patients who failed to show up for consultation, visiting families to schedule attendances, etc) (MS/COSAC 1999). This accumulation of tasks suggests that CHWs are overworked, as shown by studies from other countries (Walt, 1990; Frankell, 1992; Kahssay et al 1998).

In 1994 there were 30,000 CHWs working in 900 Brazilian municipalities and by June 2005 there were 207,500 CHWs visiting monthly 72.4 million people in 95% of the Brazilian municipalities (MS/COSAC/SPS 2005).

The Brazilian Ministry of Health gives to the municipality approximately US$800 per CHW per year. The remaining costs are paid for jointly by the state and municipal government. In 1994 the programme total cost was US$ 72 million, US$ 104 million in 1997, US$ 250 million in 2001 and in 2004 about US$ 365 million (MS/DAB/SAS 2005).

Despite the fact that there is no independent study demonstrating the impact of the PACS, with evaluation being based only on data provided from a surveillance system, the Ministry of Health maintains that CHWs are not only reducing the infant mortality rate around the country but also increasing substantially antenatal care attendance and infant growth monitoring (MS/COSAC/PACS 2000).

Based on lessons learned from previous experiences in other national programmes it is possible to suggest that the number of tasks attributed to the CHWs in the Brazilian programme is excessive and the above cited conclusions on the possible impact of their intervention is not well supported either by the literature nor by local programme evaluations.

4.8 Programa de Saúde da Família (Family Health Programme)

The Programa de Saúde da Família (Health Family Programme) was implemented in 1994. It aims to extend health care for all people around the country, mainly in rural areas and periphery of big cities and it consists of teams which include a doctor, a nurse, a nurse auxiliary and 4-6 CHWs. This team is named Equipe de Saúde da Família (ESF - Family Health Team) and works in a geographically delimited area with 600-800 families, about 3,500 inhabitants. All members of the team should work full time in the Programa de Saúde da Família (PSF) and usually live in the same municipality where they are working. The Equipe de Saúde da Família (ESF) is based on a local health facility and promotes integral

health care for the population living in the area through consultation at health facility level. It can include curative treatment at home. Doctors work by consulting sick people in the health facility and at home while nurses offer preventive consultations, such as antenatal care and immunizations, as well as and providing support and supervision for nurse auxiliary and CHWs. Nurse auxiliaries help nurses and doctors within health facility and CHWs at household level. According to the Brazilian government the CHW's should link community to the local health service and vice-versa and "to provide to the health team with information about social dynamics, needs, potentiality and limits of the communities" (MS/PSF 2000). Doctors, nurses and nurse auxiliaries are trained during a week in centres created in some regions of the country. These centres are connected to medical centres and State Departments of Health. This introductory training is designed to show how the PSF works, to enable the staff to be aware about their tasks and how to fill the forms about the programme. These forms, named SIAB, are essential for obtaining information from the people covered and to receive funds from the Federal Government for the programme. CHWs are trained in the PACS over four weeks (MS/PSF 2000).

As PSF is being implemented it is in practice replacing the PACS. In municipalities where PSF has being implemented, CHWs from PACS have moved to the PSF and the PACS is being entailed extinguished. All members of the PSF are hired by temporary contracts and should have all rights regarding to job security and fringe benefits. The PSF is maintained almost exclusively with resources from the Federal government. Each municipality receives a fixed monthly grant according to the number of PSF teams and the coverage being achieved. This grant depends on the number teams and the total population covered. The minimum value sent to municipalities by the ESF team is approximately U$1800. The maximum value is achieved when 70% of the population at municipal level is covered. In theory, additional financial and logistic support should be provided by state and municipal governments (MS/COSAC/PACS 2005) but in reality this rarely happens.

To participate in the PSF, doctors, nurses, nurse auxiliary and CHWs have to submit to exams and to take part in the introductory training. They also have to do refresher courses periodically in general medicine and they receive learning material to study by themselves. Distance learning by tapes and video were also available for all members of the team.

To implement the programme, local municipality councils have to agree arrangements with the State Department of Health. If the municipality is not in debt to the State or Federal Government, doctors and nurses are recruited and implementation is authorized. In June of

2005, about 22,000 ESF had been implemented in 5,282 (out of 5,560) municipalities around the country and the cost of the programme was about 2.1 billion US dollars per year (MS/DAB/SAS 2005).

In Brazilian history there has never been such as investment in PHC as is happening with the PSF. In many municipalities the PSF has given people the chance to consult with a doctor or a nurse for the first time in their life. The salary for doctors, nurses and nurse auxiliary has substantially improved, many new health centres have been established and provision of free medicines has also increased. However, the Federal Government has created a need for doctors specialized in community health which can not be met in the country. For this reason, other specialists without experience of working with communities have been hired. This suggests that the PSF has an enormous potential to fail. The Federal Government affirms that the PSF will be established first in poor municipalities. However, to implement PSF the municipality must not have any debts with government, which is an unusual situation in Brazil. This means that PSF will be implemented first in wealthier municipalities, increasing inequity between poor and rich municipalities. Two other potential limitations are: 1) state and municipality may not continue to give their financial contributions to maintain the programme and 2) actually there is little serious auditing by the federal or state governments on municipalities. Finally, the goal of the Brazilian government with the programmes is very ambitious. It intends to reorganize PHC in Brazil and to solve locally about 90% of health problems with the current facilities available. This all seems unrealistic.

4.9 Main characteristics of Northeast Region

The Northeast Region consists of nine (out of 26) Brazilian states and has about one third of the total population. This region can be divided in three areas: East (coastal plain), *Agreste* (intermediate) and *Sertão* (semi-arid). The *Agreste* is an intermediate area between the East and Sertão, where some cities have populations of 100,000 people, some industries and small hospitals. There are close connections between the *Agreste* and the Eastern areas concerning employment. Doctors, nurses, engineers and other specialized professionals live in the East and work in the Agreste, conversely many non-manual and casual workers from *Agreste* work in the Coastal area. The agricultural sector and cattle raising are important economic activities. *Sertão* is the poorest and the most distant area from Coastal Plain. In this area, municipalities are large and have few inhabitants. Industries are rare or even no-existent, health care is restricted to health centres and education is only through primary and

secondary schools. Salaries are very low, sometimes only enough to buy food.

In the Coastal Plain are located eight capital cities whose populations can vary from half million in Aracaju, Sergipe State, to 2.7 million in Salvador, Bahia State. About two thirds of the total northeastern population lives in this area, which also has the main universities, hospitals and industries. Tourism has become very important as a source of income, largely because of the most beautiful Brazilian beaches.

During drought periods, the Federal Government provides temporary jobs for people, such as cleaning borders of roads and building dams. During three or four months a year each family can indicate one adult to work in this type of job. They receive about US$1 per day and a basket of foods (Tendler 1998).

The Federal Government has tried in the last 50 years to reduce poverty by creating new jobs in these areas by offering money loans with low interest rates. However, mainly due to corruption only a small amount is actually used to create jobs at the municipal level.

Poverty, corruption and exploitation of people are very common in *Agreste* and *Sertão*. Some families have retained political power in the region in the last half of century. These states are amongst as the most under developed in Brazil.

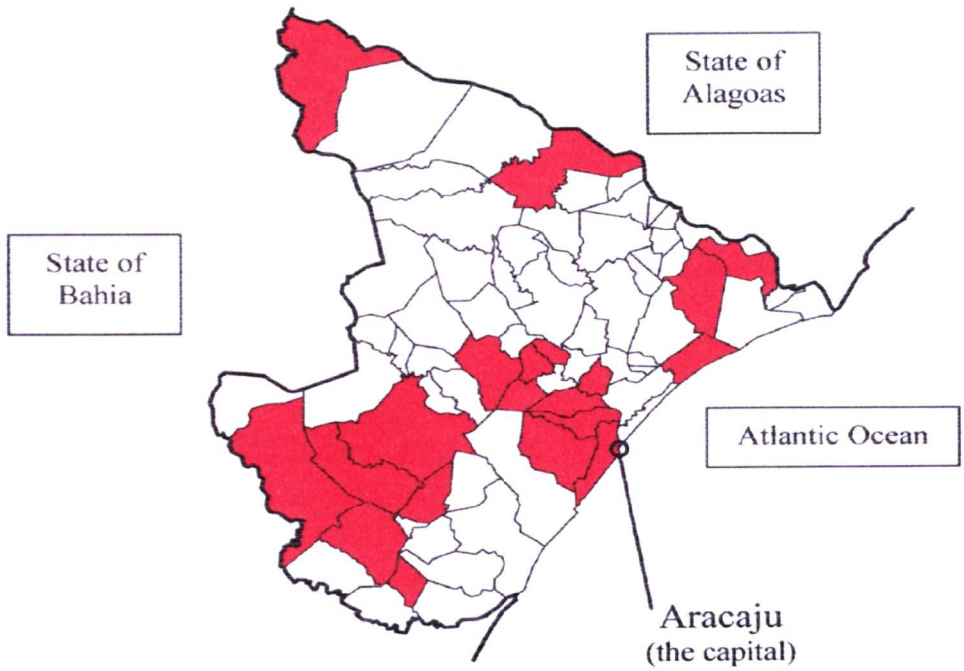
4.10 Main characteristics of Sergipe State

Sergipe is the smallest Brazilian State (See Figure 4.2 above), with 1.8 million inhabitants living in 75 municipalities. Nearly three quarters of its population lives in urban areas, mainly in the Coastal Plain. About 70% of all municipalities have less than 10,000 inhabitants and Aracaju, the State's capital is the most populous city with half million of people. The longest distance between the capital and a municipality is 225 kilometres.

There are some industries in Sergipe, mainly located in the metropolitan area of Aracaju, often connected to petroleum, natural gas and textiles. In the interior, mainly in the *Agreste* area, the main industries are textiles, leather goods and soap. In agriculture the main products are oranges, limes, sugar, alcohol, rice, cotton and coconut. Cattle-raising is also an important economic activity in this area. The climate is tropical, with temperatures varying between 20 and 37 degrees Celsius. The present unemployment and illiteracy rates are 11% and 25%, respectively. GNP per capita was about US$1,400 per year. Poverty involves 46% of families and 22% of children aged 10-14 years are working. The infant mortality rate is 46 per thousand and life expectancy is 69 years for women and 63 years men. However, of the states in the Northeast Region Sergipe has one of the best health and educational indicators

(IDB 2002).

Figure 4.3 Map of Sergipe State showing municipalities included in the study.



4.11 Sergipe: local health system and social indicators

In Sergipe the local health system consists of 52 hospitals and maternities with the main one located in Aracaju. Only 60% of beds, about 2,400, are available for them and only one third of doctors (691) are in the public sector. They are scattered in 445 health facilities and 17 specialized clinics around the state, mainly in metropolitan areas. About 50% of doctors are connected to the PSF, which consists of a doctor, a nurse and 4-6 CHWs. They are supposed to offer basic health care for 600-800 families in a defined area, spending half their time in the community and the other half assisting in the health services (MS/COSAC 2005).

In December 2004, there were 478 PSF teams and 3,374 CHWs active in all 75 municipalities in the State respectively. About 85% of these CHWs were connected to PSF teams, with others working in the Programa de Agentes Comunitários de Saúde (Community Health Worker's Programme or PACS) (MS/DAB/SAS 2005). In this programme, a nurse

supervises up to 30 CHWs. More details on these programmes were being provided above. With relevance to IMCI, in mid-2002 there were 95 doctors and 178 nurses trained in IMCI working in 60 municipalities, while in five municipalities 242 CHWs had received introductory training in IMCI (Antonio C Paixão, State coordinator of the strategy, personal communication).

Sergipe has all the main characteristics previously mentioned for the Northeast Region. It public health system is not adequate and indeed is mainly concentrated in the coastal plain where health status is better.

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Chapter Five:
Research studies and methods

5.1 Introduction

The overall purpose of this section is to demonstrate how the different research studies were carried out and to describe their methods. Quantitative and qualitative methods were used to investigate the following topics:

1) describe the conditions of children aged under five years living in the state of Sergipe, including socioeconomic, demographic, environmental and health status characteristics;
2) measure the utilisation of government health facilities and the coverage of specific health interventions among these children;
3) estimate the population coverage of the community health worker (CHW) programme in the Sergipe by determining the proportion of children under five years of age regularly visited by them and to investigate coverage differentials according to geographic and socioeconomic characteristics;
4) describe the profile of CHWs active in Sergipe, in terms of age, gender, education, salary levels, and knowledge about child survival interventions;
5) evaluate the current level of integration between CHWs, health services and communities;
6) identify facilitating factors and barriers for extending the IMCI to the community through CHWs, and
7) describe the strategic organizational requirements for such an extension.

Three interrelated studies addressed these issues. Two representative sample surveys were conducted in the State, the first on a population-based sample of children under five years old and their families (addressing objectives 1-3 above), and the second on a probability sample of CHWs employed in the public sector (objective 4 above). The third investigation adopted a qualitative design to address objectives 5-7, consisting of in-depth interviews with CHWs, and expert interviews with doctors, nurses and heads of municipal department of health. In addition, focus groups discussions (FGD) were held with mothers of children under five years of age. The details of the methodologies used in the three studies are presented below.

5.2 Study populations

The research studies focused on children under five years old, their mothers and health workers, including CHWs. Children were included because they are the main focus for the IMCI strategy and a priority group for interventions in primary health care (PHC) in Brazil, while mothers are their main caregivers and consequently the most common users of health services. The studies utilised two different representative samples from Sergipe, firstly, of children underfive years old and their mothers, secondly, of CHWs actively included in health programmes. Doctors and nurses participated in this study because they are the main health workers responsible for offering health care to the population. Doctors and nurses also provide support and supervision for all people working into the health services and they act as the coordinators for all programmes dealing with child health in Brazil such as IMCI and CHW programmes. Heads of municipal departments of health were also included because they have power to take decisions and are responsible at the local level for implementation of strategy and programmes. Finally, CHWs were included in this study because they are seen as the key people to achieve better health for children at household level. In Brazil, they are supposed to visit all families living in their community at least once a month. They also live in the community and know its members well.

Table 5.1 shows the subjects who participated in this study and which methods were used to collect information from them. For the quantitative studies a representative sample of children under five years old and CHWs were chosen in Sergipe State.

Table 5.1 Population groups included in this study and type of quantitative and qualitative methods used to gather information.

Study population	Method of gathering information			
	Standard questionnaire	Expert Interview	In-depth interview	Focus groups
Children under five years*	✓			
Mothers of children under five years old				✓
Community health workers*	✓		✓	
Doctors		✓		
Nurses		✓		
Co-ordinators of health programmes		✓		
Heads of municipal departments of health		✓		

* representative sample from the State of Sergipe

5.3 Research methods

Research methods were chosen to be appropriate for measuring the child health indicators and to determine the profile of CHWs and their working conditions, as well as to capture perceptions of health professionals about extension of the IMCI strategy to the community through CHWs. As shown in Table 5.1 above a combination of methods were used to get this information. Quantitative assessments were done using structured questionnaires in representative samples of children under five years old and families and among active CHWs. The qualitative methods used expert and in-depth interview and focus groups discussion (FGDs).

The research methods used were seen as complementary, so as to produce different perspectives. Quantitative methods allow data to be collected on a specific set of variables in a precise and detailed way, while qualitative methods permit a more open exploration of issues and patterns on interrelationships between concepts (Brannen 1992). Other advantages in using both methods are listed in the Panel 5.1 below:

Panel 5.1 Comparison of advantages of quantitative and qualitative research methods.

Quantitative methods	Qualitative methods
• Design strives to control for bias so that observations can be understood in an objective way;	• Is striving to understand the issues under investigation, looking to first hand experience to provide meaningful information;
• Addresses accumulation of observations and causes of behaviour;	• Addresses concerns within the changing and dynamic nature of reality;
• Strives to identify and isolate specific variables within the context;	• Focuses on a holistic view of what is being studied, strives to provide a full picture of constructs under investigation;
• Data is collected under controlled conditions in order to lower the possibility that variables other than the one under study can account for the relationships identified.	• Data are collected within the context of their natural occurrence.

Source: Brannen 1992; Russel 1994; Baum 1995.

From quantitative methods, a cross sectional survey design was chosen. This has some advantages in this situation since it is: 1) able to establish the most frequent occurrences of disease, behaviour or any other event under study, 2) easier to conduct because follow-up

is not required, 3) provides a good picture of health care needs of the population at a particular point in time; 4) can be used to investigate multiple exposures and multiples outcomes; 5) can be quickly applied in a representative sample of the general population; 6) has an enormous power of generability if the sample is representative, 7) can be easier to analyze; 8) can be cheap; 9) can be a most effective and efficient way to evaluate health programmes; and 10) is most appropriate design as the basis for planning public health interventions on a large scale (Ross and Vaughan 1986; Kelsey et al 1996; Silva 1999).

The main disadvantages of this design are that it is: 1) strongly affected by duration of disease (it can over-represent cases with long duration, i.e. diabetes, and under-represent those with a highly variable or short duration, i.e. flu); 2) not useful to investigate rare diseases or exposures because this requires surveying large numbers of people; 3) weak for establishing the time sequence of events such as exposure and disease onset, as it may be impossible to determine which came first; 4) not appropriate for investigating exposures that are variable or changeable, such as dietary factors (Kelsey et al 1996; Rothman and Greenland 1998; Silva 1999).

In this study, disease and exposure are not rare and aetiology for many of events on investigation has already been defined by other studies. In children, chronic diseases with a long duration are uncommon and exposures that change rapidly can be investigated for the previous 24 hours. Therefore, a cross sectional design seems to be the most appropriate choice for this investigation.

In terms of qualitative methods, expert interviews (key informant), in-depth interviews and focus groups discussions were used. Qualitative methods are useful for exploring a topic or issue because they allow them to be covered in greater detail than questionnaires. They also allow views and perspectives and the reasons behind them to be uncovered. Expert interview are employed to explore the perspectives of high-level staff members who are able to understand the nature and objectives of the research, have a broad view about the topic investigated and who, in general, have the power to promote change. These respondents are usually busy and interviews last 30-60 minutes. In this study, expert interviews were used with heads of municipal departments of health, doctors and nurses. In-depth interviews usually take 2-3 hours and respondents are interviewed two or three times. The respondents tend not have a broad view of the topic, but are familiar with details about their duties and the facilitating and limiting factors that they face. In this study, in-depth interviews were used with CHWs. Focus group discussions (FGDs) produce information

from the interactions between participants of a group. FGDs enable in-depth discussion about a particular topic and are useful to explore perceptions, thoughts, feelings, and impressions of people in their own words (Stewart and Shandasani 1990; Krueger 1994).

Quantitative methods provided representative and generalisable data on the health of children under five and their nutrition, access to health care and key social, demographic and economic factors that affected them. , The qualitative methods provided an explanation, the how and why, of the quantitative findings (Kelsey et al 1996; Brannen 1992; Russel 1994). The latter were used initially to define the study aims and research questions, and contributed to the design of the research instruments, i.e. questionnaires, by identifying the relevant local linguistic concepts (Bernard 1995). More details on the qualitative methods used are given under Study Three (section 5.6).

By combining methods, the advantages of each methodology was used to complement the other, making for a stronger research design, which can result in more valid and reliable findings (Brannen 1992). Also, the inadequacies of individual methods are minimized and threats to internal validity are identified and addressed (Baum 1995).

5.4 Study One: Survey of children under five years old

The objectives of this study were to survey children under five years old to:

2) determine their pattern of morbidity;
3) utilization of health services and
4) estimate the proportion of children under five years of age who have been and are visited regularly by doctors, nurses and CHWs.

To investigate these objectives, a representative sample study was obtained in 21 (out of 75) municipalities in the state of Sergipe. How the children were chosen are described below.

5.4.1 Sampling strategy

The sampling strategy had two stages. In the first stage, municipalities were chosen using probability proportional to size (P.P.S.) with replacement and in the second stage, households were systematically defined based on census tracts. This type of sampling strategy concentrated resources in a limited number of settings, there being no need for a sampling frame for the whole population. Also, two-stage sampling introduces flexibility into sampling which is lacking in the simpler methods. Nevertheless, this strategy is less precise

than that based on a simple random sample of the total size. In order to achieve similar precision to a simple random sample, a larger total sample size is required which then demands more time and money (Kirkwood 1988).

Interviewers visiting a census tract in rural area

The census tract is defined by the Brazilian Bureau of Geography and Statistics (IBGE) an urban unit including a few blocks, typically, with 200-300 households. In rural areas, census tracts are defined based on rivers, roads and mountains. Rural tracts have fewer households but occupy larger geographical areas. This study covered 30 groups, each with six census tracts (180 census tracts in total). Considering that all municipalities in Sergipe have at least six census tracts, all of them were eligibly for inclusion in the study.

To choose the municipality they were ranked according to their health districts and number of inhabitants (Tables 5.2) starting with the State capital, Aracaju, and cumulative population totals were calculated for this list. The total State population at the end of 1999 was 1,712.626 people. This number was divided by 30, the number of sampling units previously determined. The result was 57,087. A starting number was randomly generated: 30,280. The first sampling unit selected belonged to Aracaju because, in the table of cumulative populations, this city included the number picked out. The second sampling unit was defined by adding 57,087 to the random starting number of 30,280, which resulted in 87,367, and so on in order to complete 30 sampling units. Because Aracaju had 445,553 or a quarter of the inhabitants, it happened that the first eight groups of census tracts came from this municipality. Two large municipalities, Nossa Senhora do Socorro and Lagarto had two

groups of sampling units selected for them and all other municipalities had just one sampling unit each.

As shown in the Table 5.2, 30 groups of census tracts were selected in 21 different municipalities in all seven health districts of the state. Four municipalities came from the metropolitan area, which includes the capital, the most populous health district of the state. In this health district, 12 groups of census tracts were selected, representing 40% of the total of sampling units included in the study. The first health district included four municipalities, the second and third Health Districts had three municipalities. Although health district six included three municipalities, four groups of census tracts were selected there, because it is the second most populous health district in the State. Finally, in the fifth health district, two municipalities with one group of census tracts each were included. Table 5.2 shows the municipalities and in brackets the number of groups of census tracts selected in each of them.

Having chosen the municipalities, the next step was to select the census tracts. A list of the census tracts per municipality were provided by IBGE in Sergipe. From this list, census tracts were also randomly chosen by computer-generated numbers. In Aracaju, the central area was excluded because it was not covered by CHWs programmes. This exclusion was done mapping in the census tracts all streets not visited by CHWs in the central area. Those census tracts which were not visited by CHWs were excluded. Using these criteria, 70 census tracts were excluded (1 to 36 and 149 to 183) among the 400 available for selection. This represents about 60,000 people living in the richest and most commercial area of the city. Exclusion of these 70 tracts was justified since they were not covered by CHWs and most buildings were non-residential. The sampling frame, therefore, included all areas in the state that were covered by CHWs.

For the chosen census tracts, blocks were consecutively numbered in a clockwise direction and then one block was randomly selected. Finally, in the selected block the street corners were numbered and again one was randomly selected. From this point, the following 22 consecutive households were visited in a clockwise direction. If there were not enough households in the block, the interviewer went to the next block as previously defined. When a family was found with a child aged 0 to 4 years the mother or caretaker was interviewed using standard questionnaires. More details about information collected are provided in sections 5.4.3.

Table 5.2 **Municipalities from Sergipe, according to their health district, showing populations at the end of 1999. Municipalities selected for study sample shown in bold.**

Health district	Municipality	Total population	Cumulative population	Health district	Municipality	Total population	Cumulative population
Metro	**Aracaju (8)**	445,555	445,555	Fourth	N. S. da Gloria	23,988	1,261,397
	N. S. Socorro (2)	131,351	576,906		Porto da Folha	20,589	1,281,986
	São Cristóvão (1)	62,258	639,164		**Canindé (1)**	17,452	1,299,438
	Laranjeiras (1)	23,167	662,331		Poço Redondo	17,026	1,316,464
	Itaporanga D'Ajuda	19,855	682,186		Monte Alegre	10,325	1,326,789
	B. dos Coqueiros	17,839	700,025		N. S. Lourdes	9,656	1,336,445
	Riachuelo	7,954	707,979		**Gararu (1)**	9,360	1,345,805
					G. Cardoso	5,245	1,351,050
First	**Estância (1)**	58,340	766,319		Feira Nova	4,898	1,355,948
	Itabaianinha (1)	33,449	799,768		Itabi	4,860	1,360,808
	Santa Luzia	24,456	824,224		Cumbe	3,618	1,364,426
	Umbaúba (1)	18,208	842,432				
	Cristinápolis	14,106	856,538	Fifth	Propriá	26,714	1,391,140
	Tomar do Geru	13,763	870,301		**Neópolis (1)**	18,097	1,409,237
	Indiaroba	12,219	882,520		Aquidabã	17,534	1,426,771
	Boquim (1)	12,050	894,570		Pacatuba	10,999	1,437,770
	Arauá	10,707	905,277		Muribeca	10,203	1,447,973
	Pedrinhas	8,311	913,588		Ilha das Flores	7,956	1,455,929
					Japoatã (1)	6,989	1,462,918
Second	**Itabaiana (1)**	78,330	991,918		Brejo Grande	6,877	1,469,795
	Areia Branca (1)	17,433	1,009,351		Santana do S.F.	5,673	1,475,468
	Campo do Brito	16,468	1,024,855		Cedro de S.João	5,186	1,480,654
	Carira	15,504	1,041,323		Canhoba	3,907	1,484,561
	Ribeirópolis	14,837	1,056,160		M. dos Bois	3,074	1,487,635
	Malhador (1)	11,874	1,068,034		São Francisco	2,668	1,490,303
	Frei Paulo	11,282	1,079,316		Telha	2,627	1,492,930
	Moita Bonita	10,522	1,089,838		Amparo de S. F.	2,084	1,495,014
	N. S. Aparecida	7,746	1,097,584				
	Macambira	5,603	1,103,187	Sixth	**Lagarto (2)**	77,427	1,572,441
	Pinhão	4,902	1,108,089		**T. Barreto (1)**	42,865	1,615,306
	São Miguel do	3,047	1,111,136		Simão Dias	34,652	1,649,958
	Pedra Mole	2,427	1,113,563		**Riachão(1)**	18,319	1,668,277
					Salgado	18,074	1,686,351
Third	**Maruim (1)**	26,466	1,140,029		Poço Verde	17,533	1,703,884
	N. S. Dores	20,930	1,160,959		São Domingos	8,742	1,712,626
	Pirambu (1)	14,298	1,175,257				
	Japaratuba	14,025	1,189,282				
	S. A. das Brotas	9,903	1,199,185				
	Carmópolis	8,582	1,207,767				
	Rosário do Catete	7,233	1,215,000				
	Siriri	7,136	1,222,136				
	Capela	6,546	1,228,682				
	S. Rosa Lima (1)	3,308	1,231,990				
	Divina Pastora	2,961	1,234,951				
	General Maynard	2,458	1,237,409				

5.4.2 Sample size

Sample size calculations were based on the coverage of the CHW programmes and association between the exposure variables (socioeconomic level, household condition, etc) and outcome variables (intervention coverage, e.g., supplementation of vitamin A, and health service utilization, e.g. immunization). The estimation is shown in the tables 5.3 and 5.4. The

populations used in these calculations were based on estimates available in 1999 that were derived from the 1996 population census.

The sample was calculated assuming that the proportion of children under five years old regularly visited by CHWs in the State ranged from 10% to 90%. All municipalities from Sergipe had implemented CHW's programme but many rural areas were not served by them.

Table 5.3 Precision of coverage and utilization estimates (95% confidence level).

Coverage	Precision (percentage points) with design effect of 2.0	Sample required (including 10% for losses and 15% for confounders)
10%	2.4	1,518
20%	3.2	1,518
30%	3.7	1,490
40%	3.9	1,533
50%	4.0	1,518
60%	3.9	1,533
70%	3.7	1,490
80%	3.2	1,518
90%	2.4	1,518

The initial sample size estimate was multiplied by 2.0, to allow for the design effect. This represents the ratio of the actual sampling variance (based on a cluster sample) to the variance of a random sample with the same number of units. It was done because census tracts have different numbers of inhabitants and also because the people selected to take part in the study were not randomly chosen. The value of 2.0 is frequently used in child health research, for example, for estimating vaccine coverage (www.childinfo.org).

In addition, the final number was increased by 10% to allow for non-response and 15% for control of confounders (Smith and Day 1984; Kirkwood 1988). In this way, the total sample number of children to be included in terms of precision in this study varied from 1,490 (1,178 + 10% + 15%) to 1,533 (1,212 + 10% + 15%), depending on the precision required. For instance, for a precision of 3.2 points and 20% coverage, 1,518 children will be necessary (Dean et al 1984).

Sample size calculations were also carried out for studying associations between determinants and child health outcomes. Estimates were based on alpha error of 0.05, beta error of 0.20, relative risk of 1.5 and design effect of 2.0. Using these parameters, the number

of children to be sampled ranged from 152 to 8,240 for different combinations of exposure and outcome prevalence's (Table 5.4). This happened because this study investigated different outcomes, i.e. immunization, low birth weight, proportion of children regularly visited by CHWs, etc under different levels of exposure, including family income, mother's schooling level and distance from local health services etc (see sections 5.4.3 and 5.5.4). The green area in Table 5.4 shows the associations that would be detected using a sample size of 1,900 children (Dean et al 1994).

Table 5.4 Association between exposure and outcomes variables.

Outcomes (e.g. immunization rate, hospital admissions)	Exposures (e.g.: family income, mother's schooling level, place of residence)					
	10%	20%	30%	40%	50%	60%
10%	7,580	3,300	1,880	1,160	678	440
20%	4,340	1,890	1,070	660	390	250
30%	3,360	1,460	810	506	352	192
40%	2,980	1,290	726	446	270	160
50%	2,950	1,252	700	428	260	152
60%	3,060	1,316	734	444	272	154
70%	3,538	1,518	842	528	314	168
80%	4,992	2,004	1,110	660	410	205
90%	8,424	3,586	1,974	1,166	740	346

(alpha 0.05 per cent one tailed, beta 0.20, relative risk 1.5, and design effect 2.0)

Since according to IBGE 48.5% of households in Sergipe had a child aged 0 to 4 years, visiting 22 households per census tracts and six census tracts in each one of the selected 30 groups of census tract around the State should have resulted in 1,921 (0.485 x 22 x 6 x 30) children being surveyed. This number was enough to include almost all the sample sizes included in the green area above in Table 5.4.

5.4.3 Information collected

Two comprehensive questionnaires on the health of the children were administered, one on family variables and the other one for the children themselves. The questionnaires were answered by the person (mother or caretaker) responsible for the child. The groups of variables investigated are shown below and a copy of the full questionnaires is in Appendix I.

The information collected on the child's family is summarised below in Panel 5.2 and for children in Panel 5.3.

Panel 5.2 Children under five years old survey: variables investigated about the child's family.

Type of information	Variable	Definition
• socioeconomic status of the family	• family income;	- salary received in the last month for all people living in the same household;
	• parental schooling;	- total number of years completed from father and mother;
	• housing conditions;	- type of wall, floor, number of rooms and rooms to sleep, owner of house, use of piped water, source of water, type of toilet, home assets - radio, TV, refrigerator, water filter and gas stove;
	• number of people living in the same home;	- those who had most of their meals and slept in the home;
	• distance in km from the nearest health services;	- given by the informant or checked by the team's driver;
• mothers	• age;	- reported in full years;
	• skin colour;	- classified as white, mixed, or black by the interviewer
	• living with a partner;	- formal or informal union;
	• number and date of birth of children and stillborns and current pregnancy;	- this information was confirmed only for children under five years old;
	• knowledge on child survival;	- questions evaluating knowledge on ORT preparation, immunization scheme, antenatal care, duration of exclusive breastfeeding and signs and symptoms indicating need for referral were requested for caretakers;
• CHW visits	• visits by a CHW;	- asked if they were visited by a CHW;
	• frequency of visits;	- frequency of home visit (weekly or monthly);
	• time visiting;	- how long the visits from CHWs lasted;
	• time since last visit;	- time in months or days since the last visit;
	• knowledge of where the CHW lived;	- know how to find CHW's house;
	• type of help or care provided by CHWs during home visit and mother's perceptions about skills of CHWs for identifying children with danger signs;	- making appointments with doctors, taught how to prepare ORT, education on preventing cervical and breast cancer, referred of pregnant women, weighed children and recommended breastfeeding and immunization.
	• satisfaction with CHW's performance;	- this was an open question that was later coded.
	• frequency and situations under which doctors and nurses visited their homes;	- received visitors from doctors or nurses anytime and reasons for the last visit – an open question later coded.

Panel 5.3 Children under five years old survey: variables investigated about each child.

Type of information	Variable	Definition
• identification	• name, sex, skin colour and date of birth;	- full name was requested, skin colour classified by the interviewer and date of birth confirmed by documents;
• antenatal care	• number of doctor visits;	- number of visits since pregnancy began;
	• month of pregnancy when medical consultation started;	- age in months of the pregnancy since antenatal care started;
	• number of vaccine doses received against neonatal tetanus;	- number of doses as reported by mothers was noted. For those who received in the previous five years three doses or more were considered as immunized.
	• place of birth;	- hospital, health centre, home, others
	• type of delivery;	- normal, forceps, caesarean section
	• birth weight (in grams);	-weight obtained into 10 days after birth;
	• medical attendances for mothers in the two months after child's birth ;	The following were the main categories: routine check-up after delivery, fever, vaginal infection, breast problem, and others;
• child morbidity	• number of hospital admissions and causes in the previous 12 months;	-children that stayed at least 24 hours in a hospital: the following categories were created: pneumonia and ALRI, diarrhoea, malnutrition, anaemia, measles, injuries and others;
	• health problems/diseases in the previous 24 hours and 15 days.	-ear pain, loss of appetite, fever, cough, nasal obstruction, diarrhoea, dysentery, rapid breathing, difficult breathing, eye's problem/disease, body spot, convulsion, sleeping all the time, vomiting everything, difficult to drink or drinking less than usual, and others; all coded as "yes" or "no". Specific questions were added on presence and management of diarrhoea and rapid and/or difficult breathing in these time periods.

Wherever possible, answers were collected as a continuous variable and transformed into categorical or dichotomous variables as required during analysis. For instance, mother's schooling level was collected in full years of schooling - one year, two years, etc. - and during analysis categorized in five groups: none (zero years), 1 to 3, 4 to 5, 6 to 8, and 9 or more according to the purpose of the analysis. In the case of birth weight for example, not only categorical variables (less than 2500 g, 2500 g to 3499 g and 3500 g or more) were created but also dichotomous variable (children were born with less 2,500 grams -low birth weight- and 2,500 grams or more). All questions had the option of 'other' to include mixed answers, for instance, type of walls of the house. Houses constructed from blocks and wood or cardboard and tin-plate were classified as others.

Panel 5.3 Children under five years old survey: variables investigated about each child (Continued).

Type of information	Variable	Definition
• utilization of health services for curative care	• information on careseeking in the previous 15 days;	- child received medical attention, who brought the child to the health service, distance from home to this health service, time spent to reach it, waiting time, use of referral, type of provider, use of medicines, how these were obtained (free of charge or purchased, and how much was spent), and intake of antibiotics;
	• number of consultations in the last three months with doctors and nurses and the main causes was collected;	- categories (yes/no) were created for pneumonia/ALRI, AURI (basically flu, nasal obstruction, and ear pain and/or infection) diarrhoea, malnutrition, skin disease, injuries, routine and others;
• utilization of health service: preventive care	• use of vitamin A;	- among children aged 6-59 months was examined: date of the first dose, number of doses received according to child's card and time in months since the last dose was given;
	• physical growth monitoring;	- if their child had been weighed in the previous 30 days or three months and where it had taken place - child's home, CHW's home, community, church, health centre and other - who weighed the child - CHW, health volunteer linked to the Catholic church, doctor/nurse, other health worker, and others;
	• ownership of a child card;	- was asked for and whenever possible confirmed by inspection;
	• where the card was given;	- health centre, maternity or others;
	• who gave the card;	- CHW, nurse, doctor, others -,
	• frequency of weighing;	- number of times the child was weighed in the previous four weeks and if s/he was weighed in the previous three months;
	• place of weighing;	- place where the child was weighed last time: home health centre, community centre, others;
	• immunization status;	- for Sabin, DPT, anti-measles, BCG, hepatitis and *Haemophilus influenzae*. This information was obtained from the child's card. In case of BCG, it was confirmed by the presence of a scar on the right arm.
• diet and food supplementation	• introduction of following supplementary foods at an early ages was investigated;	- the following categories were created: tea, fruit juice, formula, milk in natura, porridge, cassava flour with milk and/or water, soup, mashed fruit, rice and beans and meat, and age was noted in full months;
	• Infant diet in the previous 24 hours;	- the following categories were created (yes or no): vitamins and medicines, water, water and sugar, juice, and tea, ORT, other liquids, solid foods and breastmilk was also recorded;
	• current breastfeeding and age of weaning;	- age in full months was noted. Was considered as being breastfeed all children who was receiving maternal milk exclusively or not.

5.4.4 Selection of interviewers and training

Students in the final year of Social Sciences from the Federal University of Sergipe were hired to carry out the quantitative interviews. Thirteen of them and two data clerks participated in the training, which was given over six days, eight hours a day, in a room provided by the State Department of Health.

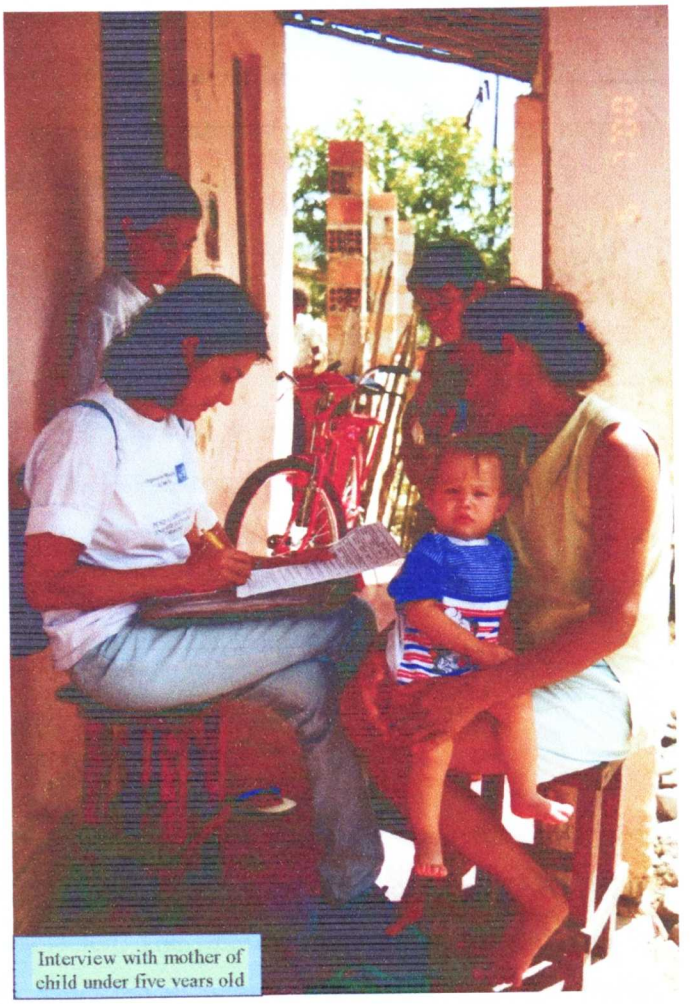
Training of interviewers

In the first day of training, the general objectives of the study were explained, all people and municipalities involved were listed, logistics for the data collection explained and criteria for selecting interviewers and fieldwork supervisor were also discussed. Also, in this day, questionnaires and instructions manual were introduced, read and discussed. This task took two days. On the third day, trainees were separated into pairs to apply the questionnaire to each other, followed by discussion of all problems identified by them or the coordinator. This was followed by role-playing of interviews with a mother and a CHW, observed by colleagues. All trainee interviewers participated in this technique. During the last two days, the trainees applied the questionnaire to mothers in a periurban area of Aracaju from a census tract not included in the study. These interviews were performed in the mornings and discussed in the afternoons. On the last day, nine of the trainees were chosen to be the interviewers. This choice was based on their previous survey experience, availability, willingness to travel to the interior and rural areas, ability to use the questionnaires and performance during training period. They also had to agree to stay in the interior for at least a week without returning to their homes in the capital city. Eight trainees were chosen to be interviewers while the ninth, the most experience among them, was hired as the fieldwork supervisor. Those not selected were retained as possible substitutes.

5.4.5 Logistics

Data collection started in the metropolitan area (Aracaju, Nossa Senhora do Socorro e São Cristóvão) and then moved to Sertão and Agreste regions. The decision to start in the

metropolitan area was based on five reasons: 1) the census tracts selected were close to Aracaju, where the teams were living; 2) to start the implementation in a area where it was easy to locate households; 3) supervision and support by the coordinator was easier than in other areas; 4) many interviews could be carried out and supervised in a short period of time; and 5) the transport for the team to the interior, to be provided by the State Department of Health, was not yet available. Transportation in the capital and in the metropolitan area was less expensive than in the interior. The next area to be visited was Sertão, the most difficult area to be studied. It was decided to cover this area before interviewers grew tired and bored with doing the same daily routine. As the fieldwork progressed it would get more difficult to convince them to walk long distances in search of isolated mothers or CHWs.



Interview with mother of child under five years old

For the data collection, interviewers worked in pairs for safety because many of them were women and mainly in urban areas they were sometimes threatened. Another reason for the pairing was they could help each other if the supervisor or coordinator were not in the same area.

Each pair was required to cover one census tract per day (22 households) and to code the questionnaire responses. All questionnaires were then collected and reviewed in the survey office by a person hired exclusively for this task. The coded and reviewed data were then entered using Epi Info (Dean et al 1994). The interviewers worked for five days a week, from Tuesday to Saturday. The first four days were used for household interviews and Saturday to return to non-responding households or to complete some interviews. Monday was sometimes used for a team meeting where progress and problems were discussed.

5.5 Study Two: Survey of community health workers

The objectives of this representative survey of CHWs in the state of Sergipe were to describe their:

1) personal characteristics (age, sex, schooling level, place of residence etc.);
2) professional standing (background, training, supervision, etc.) and
3) skills and knowledge of basic health interventions in maternal and child health (about ARI, diarrhoea, growth monitoring and development, nutrition counselling, antenatal care and immunisation).

5.5.1 Sampling strategy

From a list provided by each of the selected municipal departments of health, all currently active CHWs were alphabetically listed and 12 were then randomly selected. A list of the selected CHWs was then sent by fax or personally delivered to the head of the municipal department of health or to the coordinator of the local programmes. They were asked to gather the chosen CHWs in one place, such as a health centre or school, so that they could be interviewed by the survey team during their visit to the municipality.

5.5.2 Sample size

Twelve CHWs were selected per sampling unit. Municipalities of Aracaju, Nossa Senhora do Socorro and Lagarto had eight, two and two sampling units respectively chosen and the rest just one sampling unit was selected. The first eleven were interviewed and the last one served as substitute, if necessary. Since the study had 30 sampling units, 330 CHWs were to be interviewed, which was enough to detect a difference of 15 points assuming an alpha of 0.05 per cent one tailed, beta of 0.20, relative risk of 1.5, and design effect of 2.0.

The number of CHWs in the sampling frame in each municipality varied per municipality between 6 and 285 and data about CHWs has been statistically weighted in the analysis. The number of CHWs selected was be divided by the number of CHWs available and the inverse of this quantity was used to weight the CHW data. For instance, if an municipality has 23 CHWs and 11 were select, the result is 0.48 (11/23). The inverse value is 0.52 (1-0.48). This value (0.52) multiplied by the number of CHWs selected (11) will give de real number of CHWs represented in the weighted sample, in this case 5.7 CHW. More detail

about this data weighing will be given in the Chapter Seven on section 7.2.

5.5.3 Information collected

The information collected from each CHW is summarised in the following Panel 5.4 below. Variables were preferably collected as continuous and the option 'others' used to include a new answer or a mixing of options in the same question.

Section 5.8 provides additional information about the development, piloting and validation of research instruments used in the surveys.

5.5.4 Selection of interviewers and training

Interviewers taking part in the survey of CHWs were the same ones trained for the survey of children under five years old, as described in section 5.4.4 above.

Quantitative interview with community health worker

5.5.5 Logistics

As previously mentioned, the list of CHWs selected for be interview was sent or delivered to the head of municipal department of health or to the coordinator of the programme. This requested that the CHWs be notified about the forthcoming interview. CHWs were interviewed by the same field workers who interviewed the mothers. A single CHW was interviewed on any given occasion, in a quiet environment and at some distance away from other people.

Panel 5.4 Community health workers survey: variables investigated about community health workers and their family.

Type of information	Variables	Definition
• demographic characteristics	• CHWs age and marital status	-age was collected in full years and marital status was classified as single, married, divorced and widowed (this information was not confirmed by documents);
• socioeconomic status of the family	• place of residence, schooling level and family income	-place of residence was classified in urban and rural, schooling level was collected for total number of years completed and salary represents the total amount received in the previous month for all people living in the same household;
• about their work	• selection, training and refresher courses	- how they were selected, duration of training (in days) and topics addressed, frequency and duration of refresher courses;
	• supervision	- if supervision was provided alone, in groups or both- and frequency of meetings with coordinator;
	• equipments and consumables;	- availability of forms, pencil, cap, shirts, shoes, thermometers, etc- were collected as yes/no. Also, if the item was lacking, the time in months was recorded since it was last available;
	• time working as CHW.	- this time was collected in months and years;
	• household visits	- frequency of visits, tasks developed during their visits, tasks that they would like to do, ability to identify high risk children as already described for mothers, number of families, children, pregnant women, and people with diabetes hypertension and tuberculosis monthly visited by them;
	• type of transportation used during their visits	- on foot, bicycle, horses, others- and satisfaction with their job;
• integration with the local health team and community	• frequency of household visits with others from health team	- frequency of visits accompanied by a doctor or nurse;
	• referring patients to the local health service	- frequency of referring patients to the local health service; time in days and/or months since the last referral, if they had accompanied the patient (yes/no), why s/he had to accompany the patient. Answers to this question were later coded. Also was investigated among those who not accompanied the patients whether a note was sent by the CHW to the health services explaining the patient's problem. It was an open question later coded;
	• about patients treated at home	- those patients treated at home was also investigated if CHW helped in the treatment and if they informed doctor or nurse about the patient. For this question categories were: yes, always, yes, sometimes and no, never);
• professional standing	• salary, fringe benefits and job security	- salary received in the previous month was investigated as a continuous variable and the amount informed was noted as mentioned; fringe benefits, job security and type of contract were considered as yes/no. Because CHWs did not receive any type of document proving their salary, this information could not be confirmed;
• knowledge on child survival	• knowledge on ORT, child development and growth, AURI, pneumonia	Finally, their clinical knowledge of child survival was evaluated. The same questions used for mothers as previously described in the Panel 5.3 was also applied to the CHWs, except for preparation of ORT. CHWs were asked if they knew how to prepare ORT and the answers were noted as yes or no. If yes, they had to describe how to do it and the interviewer also took notes;

5.6 Study Three: Qualitative investigation of community health workers

This study aimed to assess the potential role for CHWs in extending the IMCI strategy from the health services into the community and to identify how this extension might be achieved. This qualitative study involved in-depth interviews with heads of municipal departments of health, doctors, nurses, CHWs and mothers of children under five years old. The objectives of the study were to describe the:

1) CHW programmes and their implementation in the study area, in particular to identify the current role and activities of CHWs;
2) current situation with respect to integration between the health service, the community and CHWs, including identification of facilitating factors and barriers to integration;
3) expectations of the programme for its extension into the community and
4) strategic requirements necessary to promote the extension of IMCI into the community with the involvement of CHWs.

5.6.1 Qualitative methods and interviewers

In-depth interviews aim to let people relax and express themselves in their own terms and at their own pace (Bernard 1995). They also aim to explore the complex nature of meanings and interpretations that cannot easily be examined using quantitative methodologies. A good interview is like a bi-directional conversation. One person talks, while the other listens, responds and encourages. The focus of the conversations remains on the experience of the person being interviewed (Rice and Ezzy 1999). Interviewers are co-participants in the discourse because they are neither passive nor distanced; they are involved in the discourse and encouraging the respondents (Mishler 1986).

In-depth interviews involve a single participant and may range in time from about 40 minutes to several hours. In general they consist of a single session of approximately one and half hours (Bernard 1995; Rice and Ezzy 1999). If needed, these sessions can be repeated on another occasion. This type of interview was conducted with CHWs (See Table 5.1).

In-depth interviews are widely used methods in health-related qualitative research. They have some advantages and also some limitations. Among the advantages are: 1) they can provide more detail about individual's understanding than FGDs; 2) they are an excellent

way of discovering the subjective meanings and interpretations that people give to their experiences, 3) they allow for investigating aspects of social life that could not be studied in any other way, 4) they work well with an inductive theoretical approach and with grounded theory; 5) they are less influenced by the direct presence of other people when sensitive matters such as rape or strong emotional responses are examined; and 6) they are seen by people as a rewarding experience (Denzin 1989; Bernard 1995; Rice and Ezzy 1999; Karp 1996). However, the main limitations for in-depth interviews are: 1) they take a long time, money, and considerable amount of energy; 2) understanding and experiences are often only developed from one interview to the next; and 3) they require skill to carry out properly. Interviews require perseverance, sensitivity, knowledge about the topic, an open mind, and previous experience. These characteristics are not easily found in junior researchers (Bernard 1995; Daly 1997; Rice and Ezzy 1999).

Expert (or key-informant) interviews are addressed to people serving in their professional capacity. That is, their knowledge, observations, views and opinions are sought from their professional perspective with respect to the issues under study. Expert interviews easily move outside the boundaries of interview guides, however, to topics which the experts feel are significant. Some questions had closed or categorised answers while others were open and can be particularly directed at issues which the person, for reason of their professional position, will have an in-depth knowledge about and which are publicly observable (Bernard 1995). Key informant interviews have some advantages; they: 1) provide detailed information directly from knowledgeable people – an "insider" point of view-; 2) provide flexibility to explore new ideas and issues not anticipated during planning the investigation; 3) can be easily combined with other techniques; and 4) are cheap, quick and easy to conduct.


Expert interview with Head of Municipal Department of Health

Among they limitations of the expert interviews the following are usually mentioned:

that expert interviews may 1) be biased if informants are not carefully selected, 2) be susceptible to interviewer's bias, 3) be difficult to validate, 4) have limited community support and may increase potential for conflict and 5) takes time to select good informants (Kumar 1986; Bernard 1995). Semi-structured, key-informant interviews were also conducted with doctors, nurses, and municipal head of department of health (Table 5.1).

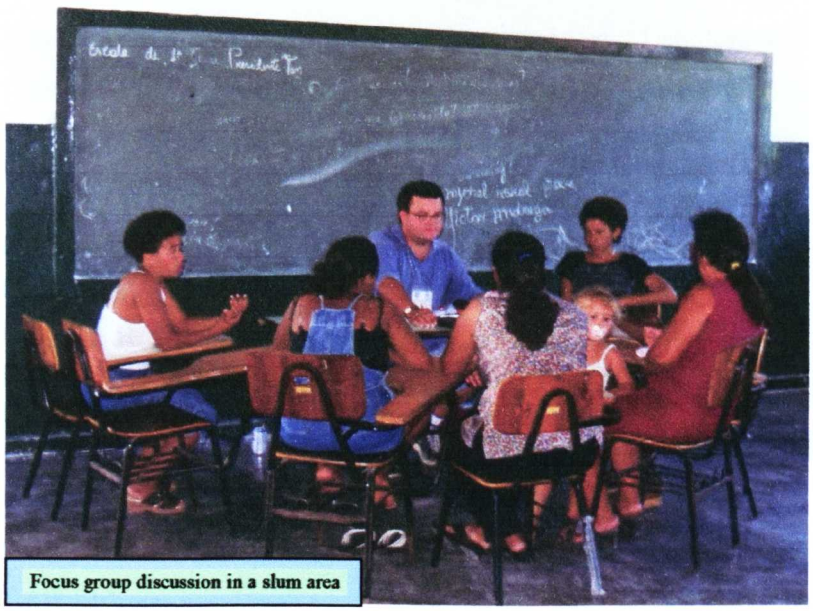
Expert interviews were used to describe interactions with high-level staff members who were able to understand the nature and objectives of the research, have a broad view about the topic investigated and who, in general, have the power to promote changes if necessary. These respondents are usually busy and the interview lasted 30-60 minutes. They included heads of municipal department of health, doctors and nurses.

In-depth interviews usually took 2-3 hours and usually respondents were interviewed two or three times. The respondents tended not have a broad view of the topic, but were familiar with the details of their duties, facilitating factors and limitations. In this study, in-depth interview were used with CHWs.

Focus group discussions (FGDs) have the ability to produce information which is not as easy to elicit without the interaction found in a group (Dawson et al 1993; Krueger 1994). They can be used to address particular topics in-depth and to explore a broad range of ideas around a topic (Bernard 1995). FGDs have several important features: 1) they enable in-depth discussion within a particular group of people, 2) are focused on specific areas of interest, 3) rely on the interaction between participants; and 4) involve participants who usually have shared social and cultural experiences or particular areas of concern. FGDs can provide a rich and detailed set of data about perceptions, thoughts, feelings, and impressions of people in their own words (Stewart and Shandasani 1990; Krueger 1994). It is a remarkably flexible research tool that can be adapted to get information about almost any topic in a wide array of settings and from very different types of individuals. FGDs are very useful to explore people's knowledge and experiences (Dawson et al 1993; Rice and Ezzy 1999). It is appropriate to investigate not only what people think, but also how and why they think the way they do (Kitzinger 1995).

The use of FGDs in health has tremendously increased in the last decade. Focus groups discussion are commonly used in 1) exploratory studies in health issues, 2) testing ideas about and acceptance of new programmes, 3) solving specific programme problems and 4) evaluating health programmes (Dawson et al 1993; Krueger 1994). FGDs can be used in at least three different ways, 1) as a self contained and main or primary source of data

collection, 2) as a supplementary source of data in quantitative research, and 3) in 'multimethod' studies when a combination of several approaches is used to collect information (Krueger 1994; Morgan 1997). FGDs are invaluable in addressing marginalised groups, such as illiterate communities, poor people from rural areas, prostitutes and people living with HIV/AIDS (Dawson et al 1993; Kitzinger 1995; Rice and Ezzy 1999).



Focus group discussion in a slum area

Among the limitations of FGDs are: 1) information gathered can only represent the perspective of the participants involved, 2) they do not specify the 'quantity' of the knowledge but its 'quality', 3) they cannot explore the complex beliefs and practices of an individual person, 4) they cannot examine if people do what they say, 5) they may be biased and not reflect the participants' interest; and 6) FGDs generate a large quantity of data and can also very time consuming, specially when translation is necessary (Dawson et al 1993; Krueger 1994; Rice and Ezzy 1999).

In this study, FGDs were carried out with mothers because, unlike health workers who could be reluctant to discuss openly in the presence of their colleagues, mothers are less subject to programme pressures to respond in 'correct' ways.

The three types of qualitative techniques were used in this study: expert interviews, in-depth interviews, and FGD. The investigator for the study (JAC) carried out all interviews with heads of municipal departments of health and all doctors, 18 (out of 26) interviews with nurses and 13 (out of 28) interviews with CHWs. Also, he facilitated and conducted all

FGDs. The other eight interviews with nurses and 15 interviews with CHWs were carried out by a local anthropologist who is a lecturer at the Federal University of Sergipe. He was 39 years old, social scientist with MSc in anthropology at the Federal University of Campina Grande, located in the same region, Northeast of Brazil. He was born in Sergipe and had some experience with poor people living in suburban areas of Aracaju. In this setting, he was dealing with people who were receiving foods and social benefits from the federal programmes. In the interior, he worked during three years with Landless Workers Movement. In 2001, he started PhD in Anthropology at the Federal University of Bahia, about 300 hundred kilometres from Aracaju.

5.6.2 Sampling strategy, selection of subjects and logistics

Initially, the Heads of the Municipal Department of Health or local coordinators of PACS, PSF and IMCI were contacted in the 21 municipalities sampled for the surveys; therefore these also constitute a probability sample of the state. On this occasion an explanation of the study aims was provided, and their agreement was sought to interview selected CHWs, doctors and nurses in the municipality. Because there was only one Head of Department of Health per municipality, all were interviewed, regardless of how long they had been in their position. They were interviewed in their offices after an appointment had been made.

Because, in many municipalities, there were various doctors, nurses and CHWs a list with all their names was obtained. From this list, the required number of staff in each cadre was randomly selected. In three small municipalities, which had only one doctor and a nurse, both were interviewed. CHWs were selected among those active in the community for six months or more. These were stratified by sex, urban/rural residence and time of activity as a CHW, and quota samples were taken to represent these different categories. CHWs were usually interviewed in their homes or in a quiet place in the community but rarely in the health centre.

Mothers taking part in the FGDs were chosen from those selected for the child health survey, through a computer generated sample that ensured diversity in terms of age, schooling level, number of children, family income and place of residence. After mothers were chosen, the coordinator of the study individually visited each mother, explained why and how they were chosen, what was the aim of the FGD, how it would work, how long it

would take, what would be their role and where it would be carried out. During this visit, mothers were told that they would receive free transportation to and from the place where the FGD would be carried out. Also, it was mentioned that they would receive US$12 (about 15% of a minimum wage in Brazil) for their participation. The FGDs were carried out in different places but usually in local community centres, schools and churches. Mothers and the moderator sat down in a circle. The assistant, a social scientist student, remained outside the circle taking notes and if necessary reminding the moderator about topics forgotten or not properly addressed. Also, the assistant recorded the distribution of the mothers in the circle and their reactions during the discussion, as well as being in charge of the tape recording of the FGD discussions. Sandwiches, snacks, biscuits and soft drinks were provided for the mothers after the discussion. After they left, a short discussion was held between the moderator and his assistant, where the main points were written down and later added to the transcription.

5.6.3 Sample size

Considering that the study included 21 municipalities, the initial intention was to cover all Heads of Municipal Departments of Health and at least one doctor, nurse and CHW per each municipality. Six FGDs were carried out, two in the capital (rich and slum areas), one in the metropolitan area and the other three in the interior, two rural and one urban area. Each group was relatively homogeneous in terms of the mothers' schooling, family income, age and number of children. Upper-class families were not included because they are not visited by CHWs. All mothers were recruited from the sample visited during the survey of children under five years old. Once the desirable maternal characteristics for each FDG were defined (e.g. schooling, age, etc) all the mothers fulfilling these characteristics in the municipality were listed and participants were randomly selected for the FDG.

The number of expert interviews aimed at was 63 (one doctor, nurse and local Head of Municipal Department of Health per municipality), while for the in-depth interviews with CHW the aim was 21, or one per municipality. These numbers were well above the typical sample sizes for qualitative studies (Russel, 1995; Green & Thorogood 2004), and was likely to be sufficient for investigating all the desired topics and domains of the qualitative study.

5.6.4 Main questions investigated with health workers, mothers and community health workers

To evaluate how to extend the IMCI services to the community through the use of community health workers using qualitative interviews, the following questions were addressed with:

Expert interviews with heads of Municipal Department of Health, doctors and nurses:

1) involvement of CHWs in the PACS and PSF and in the implementation of IMCI;
2) personal opinions about offering health care through household visits;
3) awareness of the potential and limitations for CHW programmes and IMCI;
4) expectations and perspectives for extending IMCI to the community and
5) possible strategies to improve CHWs effectiveness, including integration between CHWs, community and local health services; possible facilitating factors and barriers to extending the IMCI strategy.

In-depth interview with CHWS:

1) knowledge about child health and health service;
2) awareness their own potential and limitations;
3) expectations and perspectives about health care offered through home visits;
4) strategies to improve CHWs effectiveness for extending IMCI to the community;
5) perceptions about facilitating factors and barriers for integration with local health services;
6) satisfaction and enthusiasm for their job and integration;
7) self-confidence in developing their tasks satisfactorily
8) identification of their place within the health service/sector and
6) acceptability and trust from the community and local health teams.

Focus groups discussion with mothers of children under five years:

1) access and availability of health services, especially doctors, nurses and CHWs,
2) relationship with their health workers and CHWs,
3) their satisfaction with care offered to their children and
4) importance of CHWs and their role as a health care provider.

5.7 Overall logistics, interviews and training of quantitative and qualitative studies

To carry out the three separate studies the study coordinator of stayed in Sergipe for nine months from January to September of 2000. The main tasks developed on a time line for the surveys are shown in the Table 5.5 below.

Table 5.5 Fieldwork: overall study logistics and organization.

Activities for organization of study fieldwork	Month of data collection, 2000								
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Office renting, acquisition of major equipment, first contacts with state authorities about the research study and recruitment of an anthropologist;	***								
Preliminary interviews to develop and finalise data collection instruments;		***	**						
Analysis of preliminary interviews, definition of topics and domains to be addressed, and preparation of standard questionnaires;			**	****					
Recruitment and training of fieldworkers /interviewers;					**				
Pre-testing, finalization of data collection instruments and creating file for data entering;					**				
Data collection (standard questionnaires, in-depth and expert interviews);					**	****	****	**	
Focus groups discussions;								*	***
Data review and entry and transcription of recording tapes;					**	****	****	****	****

The interviewers were recruited and trained in May and the draft final version of the standard questionnaires were pre-tested and revised again. Data collection and input was then started. Data collection for the quantitative components and individual interviews using qualitative methods were concluded by the middle of August. At this time, transcription of qualitative was also concluded and mothers identified to take part in the FGDs, which were initiated in the last week of August and completed by mid-September. Data review and entry from the quantitative questionnaires was carried out at the same time and completed by mid-August. Transcriptions of the recorded tapes from individual interviews were started in May and were completed at the end of September. All the transcriptions of the FGDs were done later by the study coordinator in London.

5.8 Development of instruments, pilot studies and validation for the surveys

During the nine weeks from end January to March the author of this thesis and a local anthropologist visited several health centres in different regions of the state to carry out the pilot study for the qualitative research. During these visits, informal discussions were held with four doctors, six nurses and three Heads of Municipal Departments of Health. Six CHWs were interviewed in depth, and accompanied during their home visits. Three pilot FGDs with mothers of children under five years old were also carried out, transcribed and analysed. These informal interviews were aimed at identifying potential barriers and facilitating factors in extending IMCI to the community through CHWs, understanding local health-related terminology, describing the tasks allocated to each cadre of health professionals, and defining the main questions, topics and domains to be addressed in the main study. At the end of the qualitative study, the information obtained was used to prepare draft survey questionnaires for mothers of young children and CHWs.

Qualitative methods were initially used in this study to generate new questions to be investigated in the survey. Also, local terms identified during the qualitative pilot were used to define closed questions included in the quantitative questionnaires. In the interpretation phase, both qualitative and quantitative were integrated to explain the main study findings. Quantitative methods provided the frequency of the indicators under study and measured association, whereas qualitative methods were aimed at explaining how and why these findings were observed.

Most instruments for the qualitative studies (list of topics and domains to be addressed in the expert interviews, in-depth interviews and FGDs) had to be developed from scratch because similar studies were not located in the literature, and because a great deal of local adaptation was required for the qualitative studies. The quantitative survey questionnaires used in this study were based on instruments developed in the last 15 years in several surveys carried out in this region (UNICEF 1994; UNICEF 1996; Victora et al 1999), and adapted to incorporate local terminology as well as more specific questions used in the Multi-Country Evaluation of IMCI (www.who.int/imci-mce).

Issues related to validation of the instruments used are addressed in the section 5.11 below.

5.9. Quantitative data management and analysis

Quantitative data were entered with Epi Info version 6.02 (Dean et al 1994). Variables were created in "Eped", its word processor, and the data file in "Enter" option. The "Check" procedure was used to define the range, legal values and to jump the inappropriate questions. Data were entered once; frequency listings were obtained daily and unusual or impossible values were immediately checked in the questionnaire or with the interviewers. Consistency between inter-related variables was checked and inconsistencies were corrected. After this stage, the questionnaires for mothers were linked to their respective children. For each variable, descriptive statistics (mean, median, mode, range and standard deviation) were then obtained and calculated where appropriate. These analyses and those using fixed effects logistic regression were performed using Stata 7.0 (StataCorp 2001). All variables whose association with the outcome (household visit by CHW) and the independent variable had a p-value up to 0.10 were considered as potential confounding factors and were adjusted for during the analyses (Rothman & Greenland 1998).

5.10. Qualitative data management and analysis

Qualitative data were analysed based on the grounded theory approach developed by Glaser, Straus and Corbin (Strauss & Corbin 1998). In their approach, theory should be derived from data that are systematically gathered and analysed through the research process. Data collection and analysis, and its translation into theory stand in close relationship to one another (Strauss & Corbin 1998). This theory requires the following tools: 1) theoretical sampling, which is the process whereby the analyst simultaneously collects codes and analyses data in order to develop his/her theory as it emerges from the data; 2) coding, whereby data are broken down into component parts, which are assigned domain names (e.g. "barriers to extension of IMCI to community", "relations between different cadres of workers", etc); 3) theoretical saturation (or iterative analysis), a process related to identifying when a saturation point is reached in the study, and neither concepts nor categories will improve by additional data collection or coding; 4) constant comparison, which refers to a process of maintaining close connection between data and conceptualization, so that the correspondence between concepts and categories with their indicators is not lost (Glasser & Strauss 1967). The process used had 11 steps: 1) define research problem, 2) theoretical sampling, 3) collect data, 4) coding, 5) constant comparison, 6) saturate categories, 7) explore

relationship between categories, followed by a second round of 8) theoretical sampling, 9) collect data, 10) saturate categories and finally 11) test hypothesis (Bryman 2001).

The analyses, therefore, were concomitant with data collection, because early results were used to guide the next steps in this process. After data collection, transcription and reading, the main themes were identified and analytical categories were defined.

All data were analysed by the author of this thesis with the initial supervision of Carl Kendall and Judith Green (LSHTM) and later by Patrick Vaughan and Cesar Victora.

5.11 Validity, repeatability and quality control

Triangulation was used to improve the validity of the qualitative results. Information provided by CHWs, other health workers and mothers in the qualitative data where cross-checked against one another. Whenever there were conflicting information on factual issues (e.g. what tasks are performed by CHWs), the investigators went back to check which was correct. However, there were frequent differences in perceptions between the three groups, which do not constitute "lack of reliability" but that are revealing of the way in which each group perceives its own role and those of the other groups. These differences are explored in Chapter Eight.

Quality control in the qualitative study entailed weekly discussions with the anthropologist where taped interviews were listened to and compared with the transcription that had been previously done. This process provided a quality check of the transcription and also allowed the supervisor to assess if the relevant topics and domains had been properly addressed by the interviewer. Feedback was provided to all interviewers on a weekly basis.

For the quantitative survey, whenever possible written records were checked to confirm the information provided by mothers, as was the case for vaccine cards and growth charts. The use of well-tested instruments based on previous high-quality studies also contributed to enhancing the validity of the results.

Sixty eight interviews with the mothers (about 5% of the total) were repeated by a supervisor. These were randomly chosen from all but two municipalities, where it was not possible to return due to illness of the study supervisor. Agreement between information collected by the interviewers and that collected by the supervisor was excellent.

Quality control measures also included the data checking procedures described above

in section 5.8, i.e. daily listing of frequency distributions and, if necessary, a return visit to the home in order to check the questionable information.

5.12 Confidentiality of information

Confidentiality is required to keep secret all the information obtained from the people or subjects in the studies. This was guaranteed to all of them (mothers, CHWs, doctors, nurses, and heads of municipal departments of health) and also that information provided by them would not be given to any other institution. In addition no individual would be identified or reported in any publication. However, quotes from the qualitative data were used but, to avoid identification, the name of the person and his/her main characteristics and place of working have been completely changed. Team members did know about the names of people being interviewed. This was done in case it was necessary to return to their home to check some information. Meanwhile, this information was noted in separate sheets using named census tracts and after the interviews the questionnaires were collected together the next day. Typists did not work with identification of census tracts but only with the mother and children questionnaires. For instance, they did not know which children belonged to which mothers because the files were entered at different times. All outliers were carefully checked, copies of the files were made and kept in four different and safe places and then the questionnaires were incinerated. Qualitative interviews were kept in locked cabinets in London. A list with the most important findings was sent to all coordinators of the programmes in all municipalities. No other information was given to them. A short report will be provided and discussed with them by the coordinator of the study after the completion of the PhD.

5.13 Ethical clearance and consent obtained

This study was approved by the ethics committees of the London School of Hygiene and Tropical Medicine (LSHTM) and the Federal University of Rio Grande (FURG), Brazil. Also, it was formally approved by the State Department of Health from Sergipe State. All interviewers explained the study to the participants after showing them an introductory letter and, if necessary, the fieldwork supervisor or the study's coordinator provided additional explanations. According to current Brazilian legislation, there is no need for written informed consent in studies that are restricted to interviews and in which no physical examination or

other medical procedure is carried out (see appendix II).

Participants were free to refuse participation in the study. Nevertheless, whenever there was a refusal the study visited the mother again to provide more information about the study's objectives, and in some cases the refusal was reversed. In the case of a definite refusal to answer the full questionnaire, basic information about the family was requested such as the number and age of children and the educational level of parents. There were no refusals in the qualitative study.

Confidentiality was ensured by destroying physical copies of the questionnaire and by not including any identification of the family (e.g. names or detailed address) in the electronic data files. In the qualitative study, all the names of the interviewed subjects that are reported in the present thesis are fictitious, and no place names are given (other than whether the subject came from a rural or urban area).

5.14 Financial support for the study and dissemination of the results

This study cost about US$ 45,000 and was supported mainly by a grant from the Division of Child and Adolescent Health Development and from the World Health Organization (WHO), Pastoral da Criança, and CAPES from the Brazilian Ministry of Education and the Division of Child Health from State Department of Health of Sergipe.

Immediately after the study had finished, a list with the main findings was prepared and sent to the Pastoral da Criança and the State Department of Health in Sergipe. About three months later a short report including the main results was sent to the WHO, Geneva. Also, following WHO request some preliminary results were presented in 2000 in Baltimore, USA, in a workshop about IMCI and community involvement and in London in 2002 in a workshop about inequities in child health. For Pastoral da Criança some preliminary results were also presented in the Brazilian Congress of Epidemiology in 2002.

It will be important to achieve wide dissemination of the conclusion and recommendations. After the conclusion of the PhD, the author intends to return to the three areas of Sergipe (Costal plain, Agreste and Sertão) to present and discuss the main results, conclusions and recommendations emerging from this study. Invited to take part meetings will be health workers enrolled in this study, local policy makers, community leaders and non-governmental organization (NGOs) and CHWs working at community level. People from the central government, particularly those connected to PSF and PACS, will be invited

to take part in these meetings. If possible the author will also present the conclusion and recommendations to the national coordinators of the programmes at the Ministry of Health in Brasilia. An executive summary will be prepared for the media and interviews will be given for radio programmes in the interior area. Short papers will also be prepared for newspapers. Finally, four papers will be submitted for publications in international medical journals.

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Chapter Six:

Study One: Survey findings on children under five years old

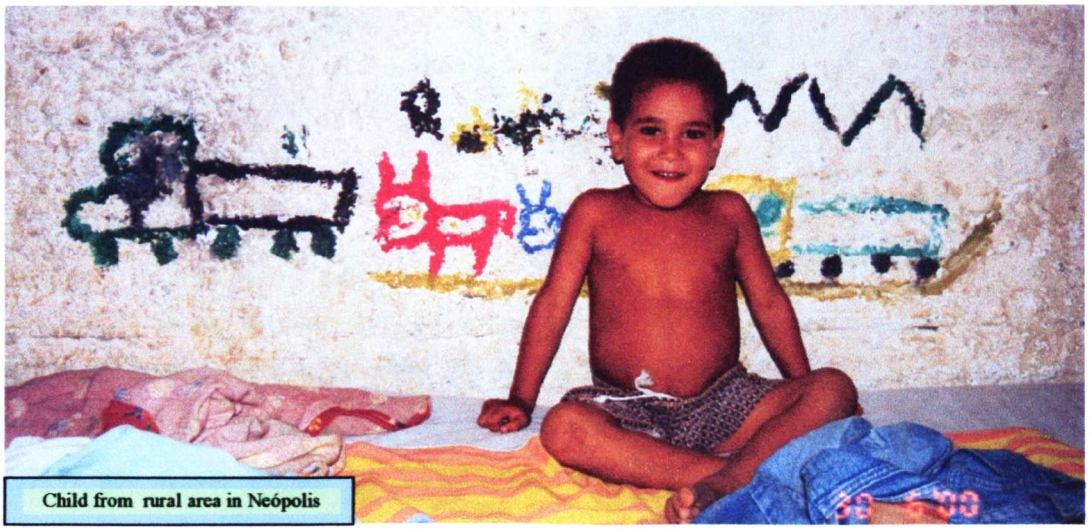
6.1 Introduction

This chapter presents the results for a cross-sectional survey of a representative sample of children under five years old in the state of Sergipe, Brazil. The survey aimed to:

1) describe the main characteristics of the children in terms of demography variables, socioeconomic level, and household conditions;
2) determine their disease pattern;
3) depict the pattern of utilization of health services and
4) measure the percent of households with children under five years old covered by CHWs in terms of their socioeconomic level.

6.2 Demographic characteristics

Among 3,968 households visited from May to July 2000 in 21 municipalities in the State of Sergipe, 1,282 (32%) had at least one child under five years old. In these households, 1,822 children were identified and information on 1,785 (98%) was successfully obtained with the help of their mothers or guardians.



Child from rural area in Neópolis

Only 37 (2%) children were not at home during the period of the research in the municipalities, and only one mother, with two eligible children, refused to participate in the study. 58% of all children lived in the urban areas, with 31% of these in the main

metropolitan area and the remaining 69% in the interior (urban and rural areas). One fifth (20%) of all children came from Aracaju, the capital.

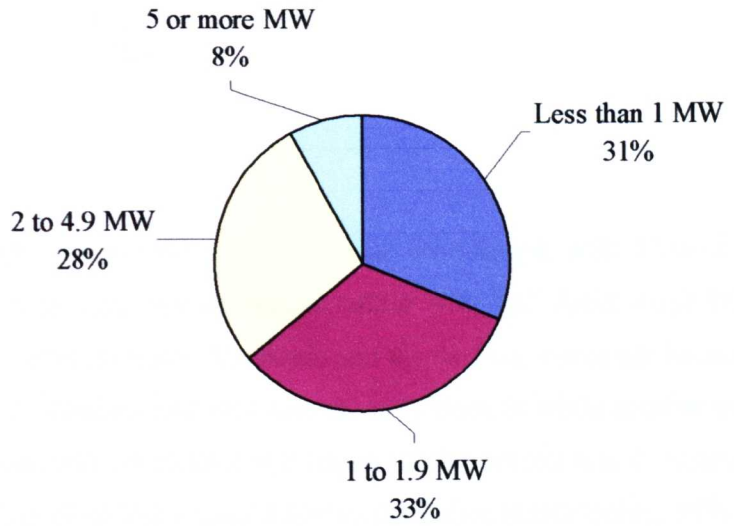
6.3 Socioeconomic, household and family characteristics

31% of families were receiving less than one minimum wage, about US$ 80 dollars per month, which is the lowest value that is recommended by the federal law to be individually paid for a person as a salary. Another third of all families received between 1

Figure 6.1

Family income in minimum wages (MW) for the previous month: households with children under five years old. Sergipe, Brazil, 2000.

N=1,775

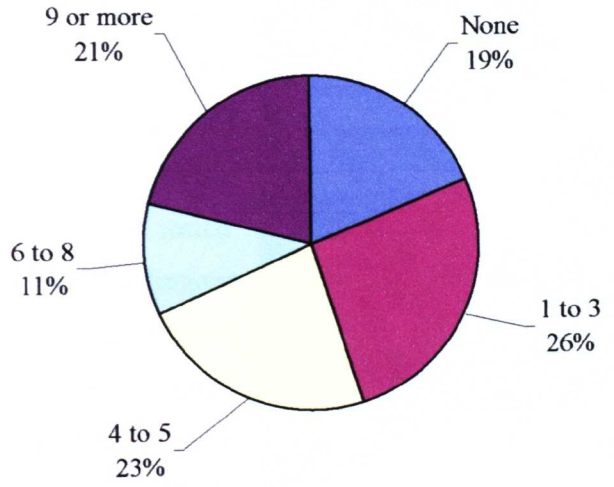


and 2 minimum wages, while only 8% had a family income equal to or greater than five minimum wages. The mean and the median family incomes were respectively US$167 and US$111 per month. Figure 6.1 shows these data. 15% of all mothers and guardians were illiterate and a further 8% knew only how to write their name. Nearly 20% of them had not completed a full year of schooling and 26% had completed only 1 to 3 years, while about fifth or 21% had 8 years or more of schooling. The mean and the median were respectively 4.4 and 4.0 years. Figure 6.2 below shows the percentages.

Figure 6.2

Mothers' schooling level in full years completed: households with children under five years old. Sergipe, Brazil, 2000.

N=1,785



85% of the study families were living in their own house, with 55% of them being well constructed and made from cement blocks, while 74% had floors made from ceramic tiles and 61% had five rooms or more. The mean and the median rooms per household was 5. However, a quarter of all families had only one room to sleep in while another quarter had 3 rooms or more. The mean and the median bed rooms per household was 2. Nearly two thirds (62%) of houses were supplied with piped water by the public sector utility, 57% had a flush toilet and 53% were attached to the public sewage disposal system. In terms of consumer durables, about 90% had a gas stove, 75% had a radio and television, while 61% and 45% had a refrigerator and a water filter respectively. 70% lived in a house with four or more people, with a mean and median of household occupancy of 4.8 and 4.0 people respectively.

It appears, therefore, that many children under five years old in Sergipe were living under poor socioeconomic conditions, even by Brazilian standards. The mean income per capita per day was about US$1 and nearly half of the mothers were illiterate or had low educational levels. Basic amenities such as water and sanitation were often lacking in their

houses.

6.4 Antenatal care and assistance at delivery

88% of mothers had visited a doctor at least once for antenatal care and 80% had started antenatal care during the first trimester of pregnancy. About two thirds of mothers had at least six medical check-ups over the antenatal period and 51% were fully immunized against neonatal tetanus, while 62% had had their urine, faeces and blood tested. However, while 70% had undergone ultrasound tests, only 46% had had both their blood pressure and weight measured. During the antenatal period, only 40% had received any guidance about delivery and breastfeeding practices. Of the 95% of children born in a maternity facility, 18% were delivered by caesarean section and 7% of new born children were of low birth weight (less than 2,500 grams). However, only 5% of children were born outside of a health facility.

Mother from rural area in Malhador

The quality of antenatal care was non-existent for 12% and one third of mothers did not complete the minimum number of medical check-ups recommended for a pregnancy. Laboratory and clinical examinations were also not sufficiently well performed in the antenatal period.

6.5 Children's patterns of morbidity

According to their mothers, nearly a third (30%) of all children sampled had had a disease or health problem in the previous 24 hours. Cough and nasal obstruction were referred to by a half of them and fever by 30%. About 10% had had difficulty in breathing

and 5% had experienced rapid breathing. Nearly 10% had had diarrhoea (Table 6.1).

Table 6.1 Frequency of diseases or health problems in the previous 24 hours and 14 days, according to mothers for their children under five years old in Sergipe, Brazil, 2000.

Disease or health problem in the recall period	Previous 24 hours (%) (N=534)	Previous 14 days (%) (N=709)	Frequency ratio %) (previous 14 d/24 h)
Cough	53	58	+ 9
Nasal obstruction	50	54	+ 8
Fever	30	47	+ 57
Flu	16	13	- 19
Difficult breathing	10	16	+ 60
Rapid breathing	5	10	+ 100
Throat problem	8	13	+ 62
Diarrhoea	9	13	+ 44
Total (N=1,785)	30%	40%	

When the recall period covered the previous two weeks the prevalence of cough and nasal obstruction remained similar to that for the last 24 hours, while symptoms indicating acute respiratory infections (ALRI) had increased. Difficult and rapid breathing increased in the period by 60% and 100% respectively (See below). Also, the prevalence of diarrhoea was raised from 9% to 13% (Table 6.1).

Based on the mothers' reports, frequency of common childhood diseases among Sergipian children appeared to be high. However, eight of the most frequent diseases or health problems referred to were already included in the local IMCI strategy.

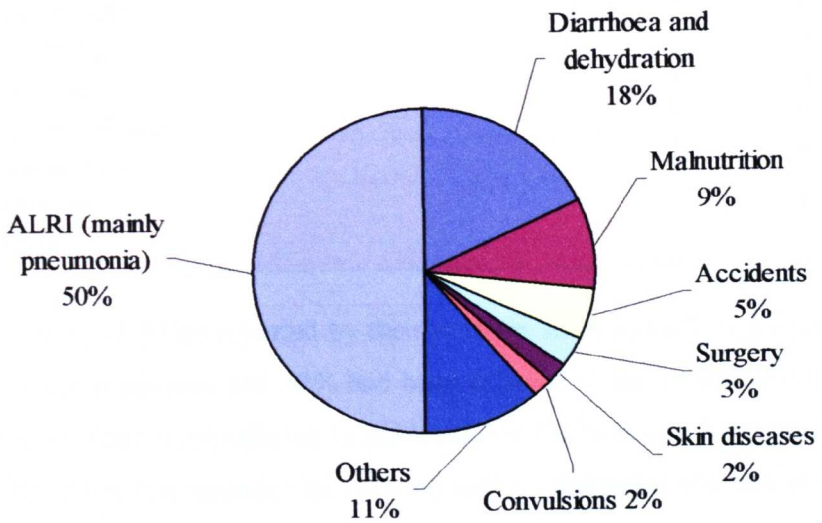
6.6 Utilization of health services

According to mothers and guardians, 10% of all children had had at least one hospital admission in the previous 12 months before the interview, with a half of these due to acute lower respiratory tract infections (ALRI), mainly pneumonia, 18% due to diarrhoea and a further 9% and 5% due to malnutrition and accidents respectively. Other causes of hospitalization are shown in Figure 6.3.

Figure 6.3

Main causes of admission to hospital in the previous twelve months: children under five years old. Sergipe, Brazil, 2000

N=186



Exactly a half of all children had had at least one medical consultation in the previous three months, with 97% of these being attended to by doctors, while a quarter had two or more consultations with doctors. Nurses provided consultation care for only 5% of all sick children. Among sick children, 30% returned for follow-up consultations (see Table 6.2).

According to mothers, the most important causes for seeking health care in the previous three months period were ALRI (42%), routine appointments (18%), loss of appetite (14%), skin diseases (12%), pneumonia (10%), and diarrhoea (9%) (Table 6.2).

Table 6.2 **Percent distribution of sick children under five years old according to main cause of medical consultation in public and private clinic facilities in the previous three months, as reported by mothers. Sergipe, Brazil, 2000.**

Main cause of consultations with doctors and nurses.	% (N=892)
Acute upper respiratory tract infection (AURI)	42
Routine (healthy child check-up)	18
Loss of appetite	14
Skin disease	12
Pneumonia	10
Diarrhoea	9
Abdominal pain	3
Malnutrition	3
Accident	2
Others	11

Nearly 60% of all children reported by their mothers as being sick in the previous 14 days had received some medicines and 42% had been referred to the health services. About three quarters (76%) of these were referred to public sector facilities (health centre 49% and hospitals 27%). The others had attended the private sector (pharmacy 6% and clinics 6%). Data are shown in Table 6.3. Among the children referred to the health services, only three did not receive any type of health care because health facilities were closed or there was no doctor or nurse working.

Table 6.3 **Percent distribution of sick children under five years old who were referred to and actually who attended public and private clinic facilities according to mothers in the previous 14 days. Sergipe, Brazil, 2000.**

Health facility	Child referred (%) (N=297)	Child attended (%) (N=294)
Health centre	49	47
Hospital/Emergency	27	29
Pharmacies	6	8
Private clinics	6	5
Total	42%	42%

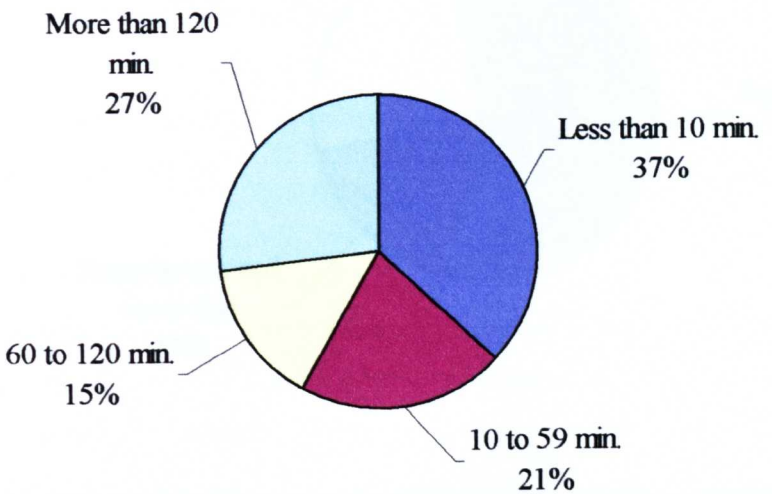
Ninety per cent of these children were brought to the health services by their mothers, a half on foot. However, in terms of distance, 40% lived less than 1 km from the facility they had attended, 20% between 1-3 km and 40% from 5 kilometres or more. The mean and the median distance from their house to the facility was 7 and 2 kilometres respectively. Only a half of all children attended the nearest health centre to their homes. The main reasons for this were that there was no doctor available or attendance by clinical staff (doctors and nurses) was bad (40%), staff at another clinic were believed to be better or the mother knew the doctor (21%), facility was closed (11%), or local staff was not reliable (6%). Waiting time until seen was a mean and median of 62 and 30 minutes respectively. Figure 6.4 shows time spent waiting for health care in these facilities.

Nearly 95% of all sick children had free health care sessions. Almost all (93%) were seen by doctors and only 2% by nurses and 6% by pharmacists. Only four children had previously been visited by a doctor or nurse at home.

Figure 6.4

Time in minutes spent waiting in facility for health care according to mothers: children under five years old. Sergipe, Brazil, 2000.

N=292



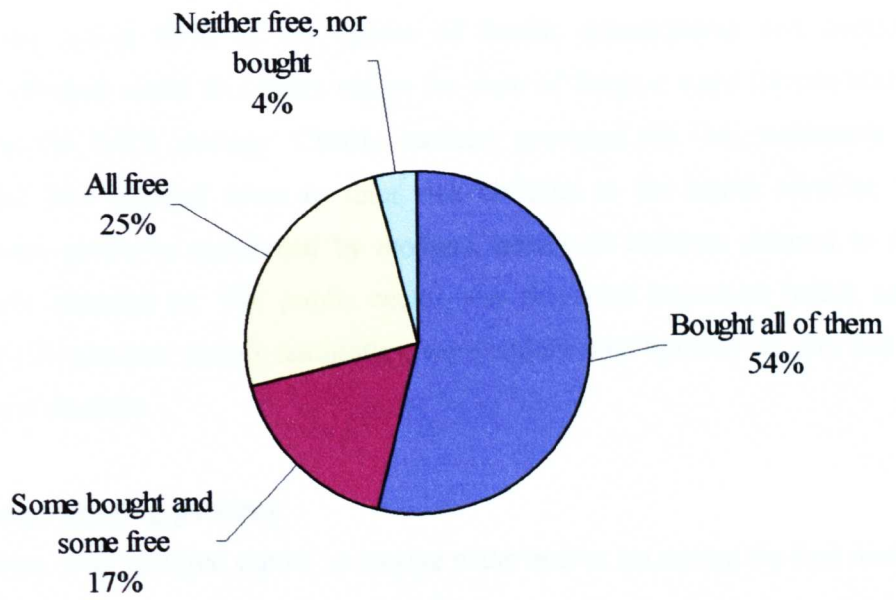
93% of all children seen had also received some type of medicine, with 62% receiving antibiotics. A quarter obtained the medicines free, while over a half (54%) had to buy all of them. Only 4% did not get or buy any medicines (Figure 6.5).

Nearly all (94%) of free medicines were obtained from the public sector, with health centres being by far the most common source (72%), followed by town halls (16%) and hospitals (6%). Local politicians provided most of the remainder (6%). Among those who had to buy medicines, 56% spent less than US$10 while a surprising 22% spent US$20 or more. The mean and median spent was US$13 and US$8 respectively.

Figure 6.5

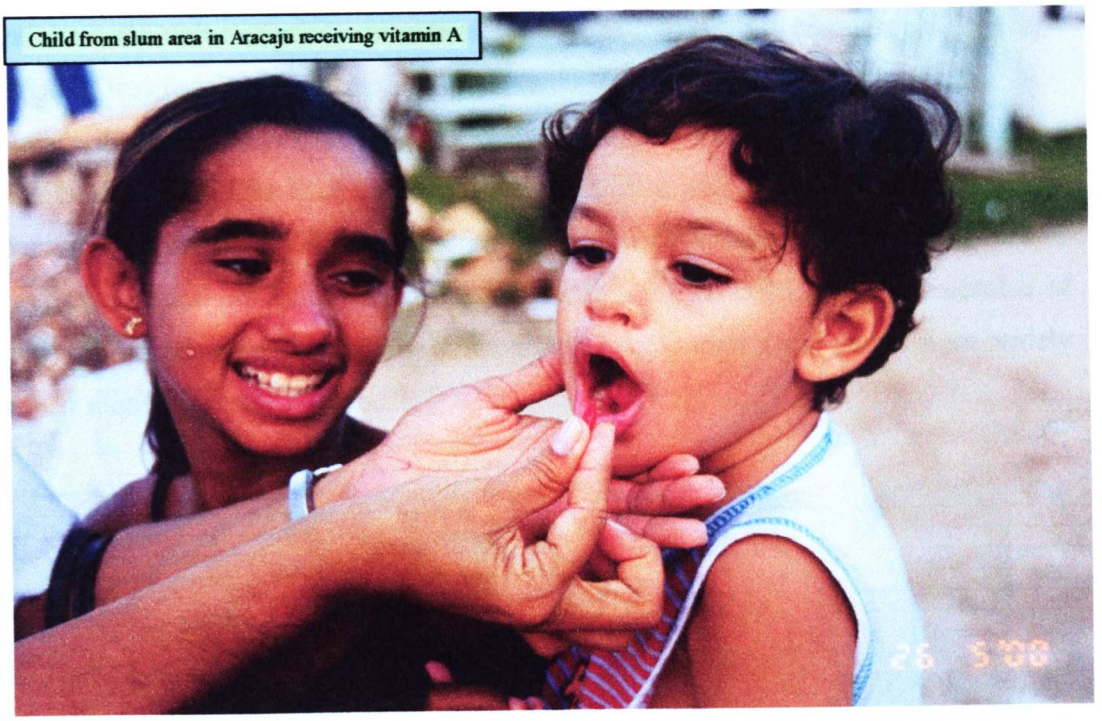
How mothers obtained medicines for their children under five years old. Sergipe, Brazil, 2000.

N=273



Finally, only just over a half (52%) of all children aged 6 to 59 months had received vitamin A in the previous six months. Among those who had not received it, the mean and

median since the last dose was about 10 months.


Child from slum area in Aracaju receiving vitamin A

In conclusion, about 85% of the causes of health consultations and hospital admissions among children under five years old in the state of Sergipe were for conditions already included in the IMCI strategy. Clearly mothers provided the first treatments at household level and also decided when to refer sick children to the health services. In general, despite many problems mentioned by mothers, nearly all children referred to the health services were attended to. The public sector was the most important health care provider in the State. Medicines, mainly antibiotics, were widely used but they usually had to be purchased by most mothers.

6.7 Diet and breastfeeding patterns

Three quarters of all children started to receive water and/or tea during the first month of life. In the same period, one quarter of young children were also receiving some type of juice and 50% artificial industrialized milk alone or with cassava flour. Those also receiving soups, fruits and solid food were 7%, 6%, and 1% respectively. The median duration and prevalence of exclusive breastfeeding was reported as being 5.4 months and 2.1 months respectively.

In the previous 24 hours, about a third (31%) of all children had received some type

of medicine, as well as 96% also had water, 71% cows milk, 62% juice, 34% coffee and 13% soft drinks. Breastmilk had been given to one quarter of them and solid food to 81%. The mean and median number of meals consumed in the previous 24 hours amongst children aged 6 to 59 months was four and three respectively.

Infant diets were identified by this study as one of the most important issues for improving child health in the State of Sergipe. Median duration and prevalence of exclusive breastfeeding was very short. The early introduction of complementary foods also appeared to be inappropriate and the food offered was not suitable for the child's age. The number of meals with solid foods also appeared to be insufficient. Soft drinks and coffee were widely used by their mothers.

Child from urban area in Aracaju

6.8 Growth monitoring and immunization status

Although two thirds of all children had been weighed in the previous three months, this was recorded in the child's card for only half of them. Mothers reported that 45% had been weighed in the last month, 6% being weighed twice, 53% with being weighed at home and 22% in the health centre. Two thirds of all children had been weighed by CHWs and less than a quarter (23%) by doctors or nurses. Fewer than 1% of all mothers could not produce a health card and 5% had two or more cards.

Between 12 and 23 months of age, vaccination against tuberculosis (BCG) was almost universal (99%) while the coverage with three doses of DPT was 90%. For children aged 12-23 months, 86% had received three doses of vaccine against poliomyelitis, diphtheria, tetanus and whooping cough, and one dose against measles and tuberculosis. For children aged between 12 and 59 months, all levels of vaccination were higher, except against tuberculosis which might be explained by older and unvaccinated children moving into the state. These data are shown in Table 6.4.

In summary, growth monitoring was weak, with many children not being weighed or not having the weight recorded. Most children were weighed in the health service by doctors and nurses. Finally, vaccination status among the youngest children was high.

Table 6.4 Distribution percent of children under five years old according to their immunization status. Sergipe, Brazil, 2000.

Immunization status	Age in months	
	12 - 23 (N=340)	12 – 59 (N=1,436)
Poliomyelitis (three doses)	93%	95%
Diphtheria/Tetanus/Whooping cough (three doses)	90%	93%
Measles (1 dose)	90%	94%
Tuberculosis (1 dose)	99%	98%
Total	85%	90%

6.9 Household visits by CHWs for children under five years old

81.1% of all children had been visited by a CHW in the previous month. Figure 6.6 shows that coverage was highest among children living in municipalities in the interior of the state (86.9%) and for those living in rural areas (88.5%).

Figure 6.6

Percent of households with underfive children visited by CHWs in the previous month, according to place of residence. Sergipe, Brazil, 2000.

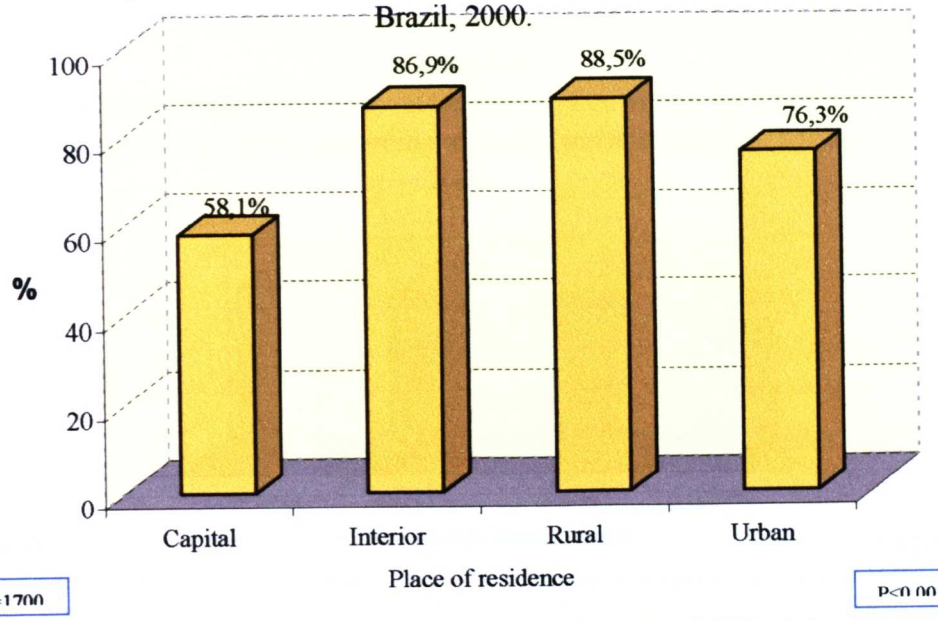
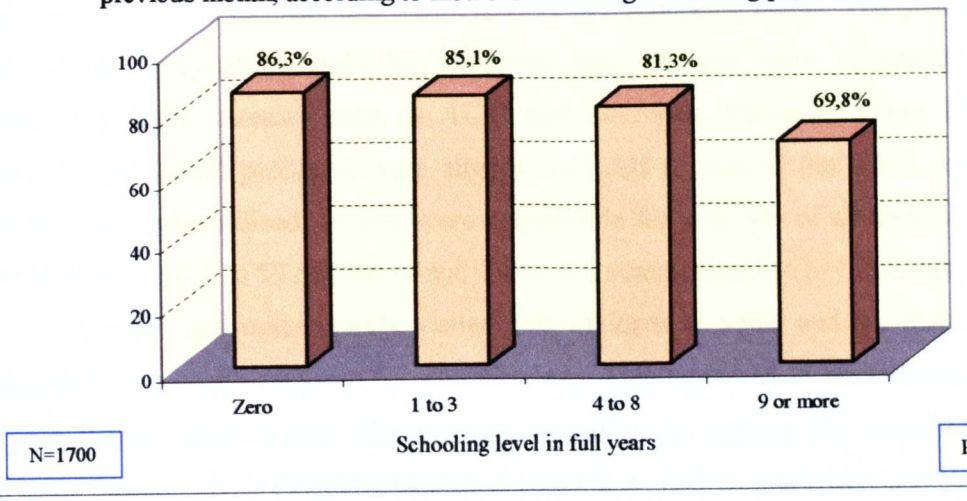


Figure 6.7 shows that CHWs were more likely to visit children whose mothers had low schooling levels. Coverage among children whose mothers did not attend school was 16 percentage points higher than for those whose mothers had nine year or more of schooling.

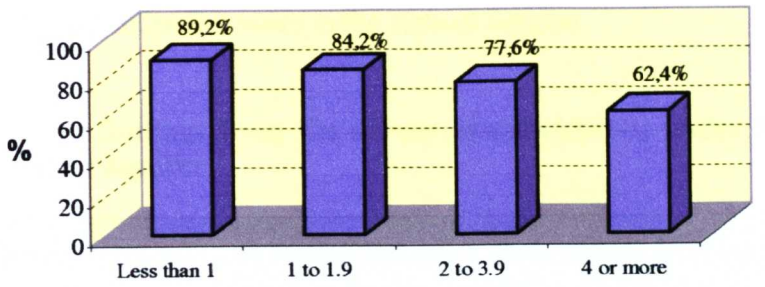
Figure 6.7

Percent of households with underfive children visited by CHWs in the previous month, according to mother's schooling level. Sergipe, Brazil, 2000.



Finally, children belonging to the poorest families were more often visited by CHWs. The difference in favour of low-income children was 27 percentage points.

Figure 6.8
Percent of households with underfive children visited by CHWs in the previous month, according to family income. Sergipe, Brazil, 2000.



N=1577

P<0.001

In summary, CHWs were regularly visiting four out of five children under five years of age in Sergipe. There was a clear trend towards higher coverage among the poor. This suggests that CHWs are contributing to reduce inequities in access to basic health care.

6.10 Conclusions

As in many areas in the developing world, many children in Sergipe were still living in inadequate and inappropriate social and economic conditions. Many families had low salaries and several mothers had achieved only low schooling levels. The quality of antenatal care during pregnancy could be improved and children were commonly affected by potentially lethal diseases such as ALRI and diarrhoea. However, about 85% of all the diseases and health problems were already included as part of the IMCI strategy. Clearly nurses were underutilised, as they were responsible for only 5% of all medical consultations for children aged 0 to 59 months of age. Panel 6.1 summarises the key findings.

Doctors and nurses rarely visited sick children at home and the majority had to be brought to the health facilities for consultations. This appeared to be an exceptional missed opportunity to improve their effectiveness, as well as for gaining the confidence and respect of these families. Poor supplementation of vitamin A, lack of medicines and excessive use of antibiotics were easily identified problems. Public health facilities were clearly the main

source of health care for all ill children. In terms of infant diets, the median duration of exclusive breastfeeding was too short and the introduction of complementary foods appeared to be too early and inappropriate. Finally, while growth monitoring was poor, a high vaccination coverage of the youngest children was being achieved. Results of the analyses of coverage by socioeconomic status showed that CHWs were preferentially reaching children living in rural areas, whose mothers had low education, and whose families were poor. This suggests that CHW are contributing to reducing inequities in terms of access to basic health care among children under five years in the state of Sergipe.

Panel 6.1 Key findings from the survey about children under five years old and their families.

- Mothers provided first treatment for sick children at the household level and decided when to take them to local health services;
- The public health services were the most important health care provider in Sergipe and access to health services for under five children was nearly universal;
- Medicines were generally lacking in health facilities, antibiotics were widely prescribed for children under five years old and had to be purchased by families;
- Nurses were clearly underutilized; – as they accounted for only 5% of all consultations and follow-up of sick children at household level by them or doctors was extremely rare;
- CHWs were regularly visiting four out of every five children under five years in Sergipe;
- CHWs are contributing to improving equity by preferentially reaching children in higher need.

Chapter Seven:

Study Two: Survey findings on community health workers

7.1 Introduction

This chapter describes the characteristics and role of the CHWs, based on the cross-sectional survey carried out with a representative sample of 311 active CHWs in the State of Sergipe during 2000. The survey aimed to:

1) determine their demographic characteristics, socioeconomic level and household conditions;
2) describe their selection, training, refresher courses, support and supervision;
3) assess patient referrals between them and the local health services;
4) evaluate their knowledge about child survival;
5) assess their situation in terms of job satisfaction, fringe benefits and salary and
6) evaluate effectiveness of visits by community health workers.

7.2 Sampling and weighting the results

Data presented in this chapter on CHWs are statistically weighted in the analysis. This was done because the number of CHWs to be included in the study sample per municipality was 11 but the number of CHWs in the sampling frame in each municipality varied between 6 and 285. In municipalities like Malhador, for instance, the 11 CHWs randomly chosen represented 65% (11/17) of the total, while in Estância, 11 CHWs represented only 8% (11/144) of the total. This representation problem was solved by dividing the number of CHWs selected by the total to be sampled in the same municipality, and using the inverse of this quantity to weight the CHW data. For instance, dividing the number of 11 selected CHWs in Malhador by 17 CHWs active in the municipality, the result is 0,647. The inverse value is 0.353 (1-0,647). This value (0.353) multiplied by the number of CHWs selected (11) will give de real number of CHWs represented in the weighted sample, in this case 3,9 CHW.

Considering that the municipality of Aracaju was included in this study eight times, Nossa Senhora do Socorro and Lagarto twice each, and the rest only once, this study aimed to cover 330 (30 x 11) CHWs among the total of 2,431 active at the end of March 2000 in Sergipe. However, since Santa Rosa de Lima had only six CHWs, the maximum eligible number of CHWs for this study was actually reduced to 325. Finally 311 of the 325 were

successfully interviewed. Fourteen were not found, as they were sick, travelling, or could not be interviewed in the period that the research team was in the municipality. They represent only 4% of the total sample selected.

7.3 Distribution by region, municipality and demographic characteristics

71% of CHWs interviewed were active in urban areas and the rest in rural areas, with 58% working in the interior and 42% in the metropolitan area. 44% came from Aracaju, Nossa Senhora do Socorro, and Lagarto and the others came from municipalities included just once in the study sample. 80% of CHWs were female, 58% were of mixed ethnic group, 32% were white and 10% were black. Nearly 70% were less than 30 years old and only 8% were 40 years or more. The mean was 28 years old, the median 26, and the age ranged from 18 to 53 years. 52% of them were married, 44% were single and the rest were divorced or widow. 54% had at least one child, while only 10% had three or more children. 85% lived in a house with four or more people, with a mean and median 6.5 and 6 people respectively.

Thus CHWs in Sergipe were mainly active in the interior and urban areas, were predominantly female, mixed ethnic group, young, married, with at least one child and had three other people living in their household. However, despite this nearly a half of all CHWs were single and had no children of their own.

7.4 Socioeconomic characteristics of community health workers and their household conditions

All CHWs were literate and two thirds of them had at least nine complete years of schooling. The mean was 8.8 years of schooling and median 10 years (Figure 7.1). Only 1% of CHWs had a family income less than one minimum wage (about US$80 per month), while 27% had between 1 and 1.9 minimum wages, and some 16% had five minimum wages or more. The mean and median income for the month immediately before the interview were equivalent to US$278 and US$211 respectively. The mean income per capita per day was nearly US$2 (Figure 7.2). 85% of CHWs had their own house, with three quarters of them well constructed and made from cement blocks, 92% had floors made from ceramic tiles and 87% of their houses had five rooms or more. The mean and median number of rooms per household was 6. Nearly 80% of their houses were supplied with piped water and had a flush toilet. 53% of their homes were attached to the public sewer system. About 95% of their houses had radio and television and 87% had a refrigerator. Almost all homes had a gas

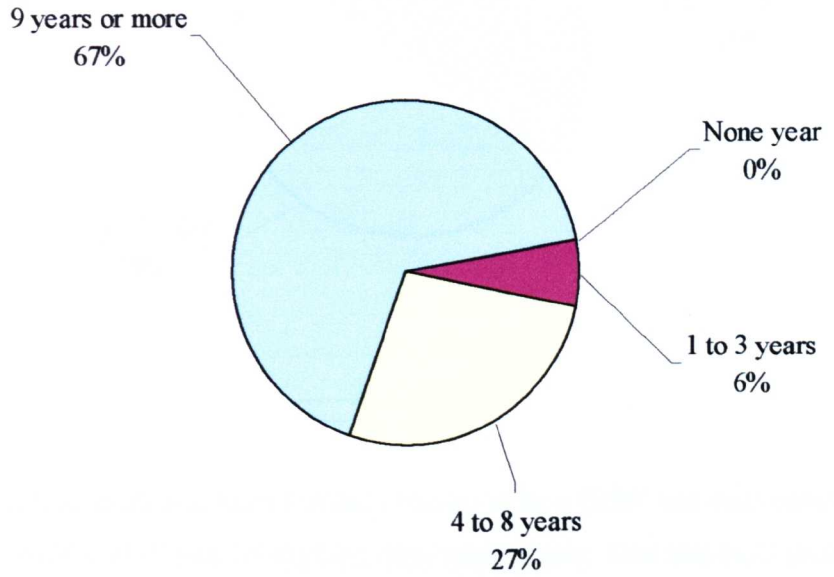
stove.

CHWs had a higher schooling level and lived in better constructed and equipped houses than most of the families of children under five years old that they visited. Most CHWs had a family income that was at least equivalent to two minimum wages.

Figure 7.1

Schooling level in full years completed: community health workers. Sergipe, Brazil, 2000.

N=311



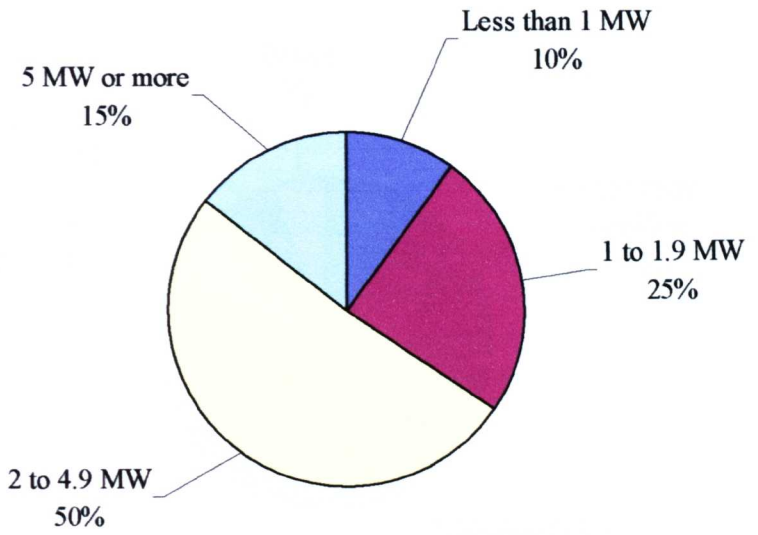
7.5 Selection, training and refresher courses

CHWs had originally learnt about their job from different sources. The most common were friends (37%) and by radio, television, or newspapers (29%). Figure 7.3 shows the different ways that they had been informed. The mean and median of the number of candidates per vacancy was 23 and 10, respectively.

Figure 7.2

Family monthly income in minimum wages (MW): community health workers. Sergipe, Brazil, 2000.

N=311



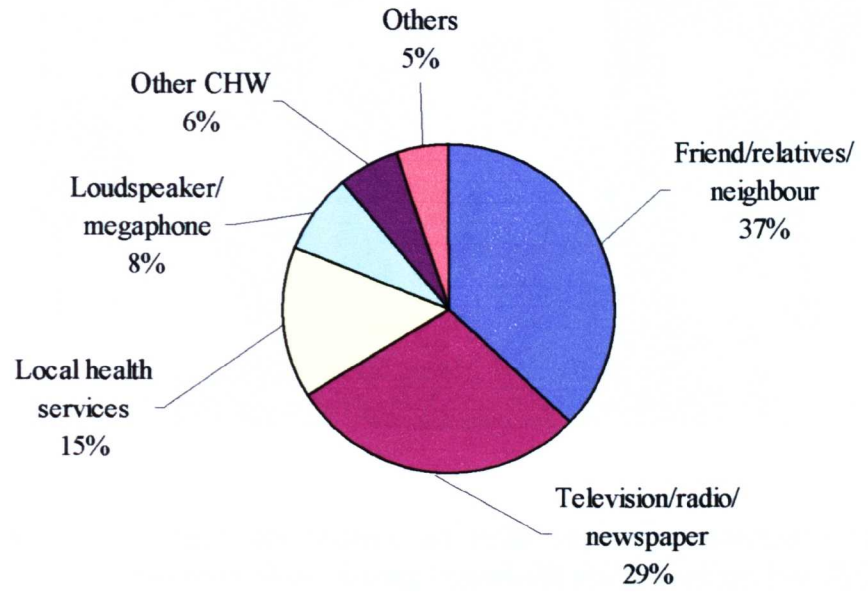
Over 96% of them had been formally trained to be a CHW and this training had lasted a mean and a median of 17 and 15 working days respectively. This had been provided mainly by nurses (73%), doctors (6%), both (12%) and others (9%). The training included the filling forms and topics in child survival such immunization, breastfeeding and diet and antenatal care, and was carried out only in the health centre. 92% had had at least one refresher course since this initial training. On average, the last course had happened 5 months previously.

About 70% of them had started as a CHWs in the PACS and then moved to the PSF. When these data were collected (middle of 2000), 47% were working in the PSF, 41% in the PACS and only 12% were associated with the Pastoral da Criança. Considering the PACS and PSF, the mean and median duration working as CHWs were 28 and 26 months respectively.

Figure 7.3

How community health workers first learned about their job: community health workers. Sergipe, Brazil, 2000.

N=311



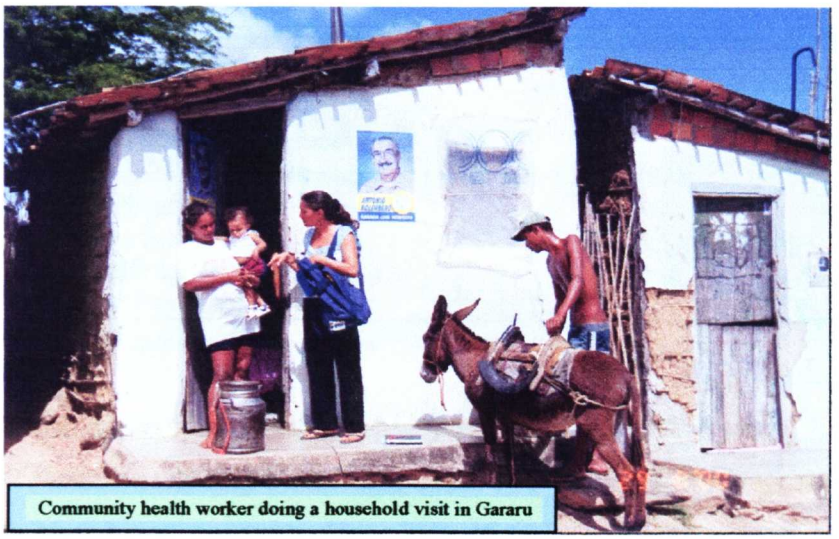
The large number of candidates per vacancy suggests that these opportunities are rare in many Sergipian municipalities. The CHWs were mainly trained in a health centre by a nurse and put to work in the community. There were similar numbers employed in the two main national programmes and most had completed training about two years previously.

7.6 Household visits

The great majority (97%) of the CHWs said they knew the area where they were designated to work and at the time of their interview 96% of them were already living in this setting. About half of them had been living in this area for more than twenty years, with a mean and median of 16 years. 65% of them were doing one household visit per family per month, 20% two visits and only 15% were doing three or more visits monthly.

According to the CHWs while carrying out household visits they asked about sickness

in the home in the last month, taught household members how to prepare and to give ORT at home, referred pregnant women for antenatal care, encouraged attendance for immunization, supported exclusive breastfeeding and weighed children who were at home. The results are showed in the Table 7.1.



Community health worker doing a household visit in Gararu

Table 7.1 **Percent distribution of tasks reportly undertaken by community health workers during household visits. Sergipe, Brazil, 2000.**

Tasks undertaken during household visits according to spontaneous and induced answers for:	CHW	Mothers
	(N=311)	(N=1,374)
Ask about sickness in the house in the last month	100%	78%
Make appointments with doctors	65%	59%
Teach mothers how to prepare ORT	99%	76%
Encourage attendance for immunizations	100%	93%
Recommendations for preventing cervical cancer	92%	63%
Weighing children under two years old	98%	90%
Refer pregnant women for antenatal care	99%	79%
Encourage exclusive breastfeeding	99%	71%

* Spontaneous and induced answers

Mothers were consistently less likely to report a given task than CHWs. The differences ranged from 7 to 29 percent points. One cannot be sure of how much of the difference is due to over-reporting by CHWs, or by under-reporting by mothers. Nevertheless, even if mothers are completely correct, the percentage of most tasks is still relatively high, as in at least six out of ten households these were delivered. When asked which additional tasks they would like to undertake during their household visits, about 20%

spontaneously mentioned bandaging, injections and distribution of medicines. Near a third (30%) said that they would also like to measure blood pressure. Table 7.2 shows these data.

Table 7.2 Additional tasks which community health workers would like to be able to do during household visits. Sergipe, Brazil, 2000.

Other activities that they would like to do**:	CHW
	(N=311)
Measure blood pressure	30%
To make (or to make more) appointments with doctors	21%
Bandaging	20%
Give injections	20%
Distribute medicines	20%
Distribute food	18%

** Only spontaneous answers

In terms of families visited, Table 7.3 shows that CHWs each month visited on average 162 families including 29 children under two years old, six pregnant women and 16 people with high blood pressure. Also, 12% of CHWs visited at least one person with diabetes or leprosy per month. For over a half of CHWs (54%) the farthest homes to be visited were less than one kilometre away, 36% had homes between 1- 4 km and only 9% had homes 5 km or more. The mean distance was 1.3 kilometres. 62% of CHWs visited homes on foot and the rest used a bicycle.

Table 7.3 People seen by community health workers (CHW). Sergipe, Brazil, 2000.

Monthly household visits by CHWs	CHWs
	(N=311)
Families:	
- Mean (SD) and median	162 (57), 160
Children under two years old:	
- Mean (SD) and median	29 (14), 26
Pregnant women:	
- Mean (SD) and median	6 (4), 5
High blood pressure patients:	
- Mean (SD) and median	16 (12), 14

In conclusion the CHWs knew and lived in the community where they worked. Their tasks were basically educative, promotive and preventive for basic maternal and child health. For these reasons, they would like to do more curative tasks like bandaging and undertaking more care with adults. Measuring blood pressure also appeared to be a priority.

7.7 Supervision and support

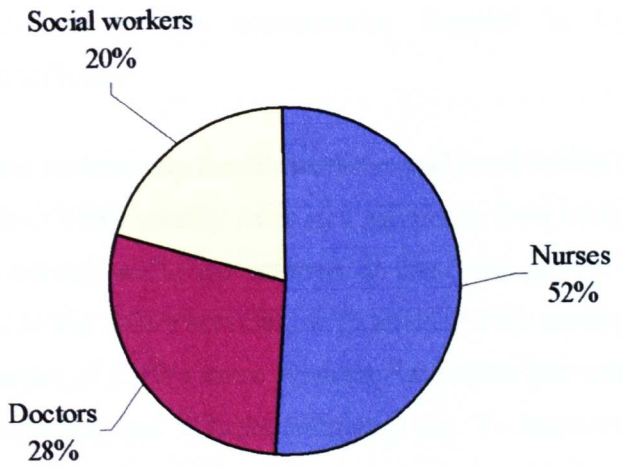
Almost a half (49%) of CHWs had been accompanied by a doctor, nurse, social worker or nurse auxiliary during their household visits in the month before the survey interviews. The mean and median number of visits accompanied was 7 and 5, respectively. Most commonly they were accompanied by nurses (87%) and doctors (54%). 93% of CHWs mentioned that they also accompanied their local health team when it visits local families. During these accompanied visits, a quarter of them said that the health staff explained about the patient's disease or health problems.

According to CHWs, their supervision was more commonly provided by nurses than doctors. Figure 7.4 shows the frequencies. About 90% of them said that at least once

Figure 7.4

Supervision of community health workers by health workers during their household visits. Sergipe, Brazil, 2000.

N=311



a month they had a meeting with a nurse or a doctor. At this meeting, the doctors and nurses wanted to know about activities undertaken by CHWs in the communities and how they solved problems (Table 7.4). They also showed CHWs their weaknesses and how these could

be remedied. For supervision of CHWs, 52% said this was provided in groups and 15% individually. Only about one third of them mentioned receiving some supervision in the previous month.

Table 7.4 **Distribution of community health workers according to the type of supervision received by them. Sergipe, Brazil, 2000.**

Type of supervision continuously provided:	CHWs (N=279)
- Meeting at least once a month	91%
- Discussion of specific situations/problems	89%
- Provide solutions for problems found during visits	88%
- Show their weaknesses and how to remedy them	89%

According to the CHWs their support is inadequate and essential materials and equipment for their tasks were constantly lacking. Table 7.5 shows that more than half of them did not have a thermometer or a pencil to fill the forms. About 10% of them did not have a weighing scale.

In general, although CHWs mostly act alone in the community, they are frequently accompanied by a nurse when making household visits. During the visits, their role is limited to helping patients tell their history. Although CHWs received supervision mainly collectively and in groups, it appeared inadequate and took little account of the specific problems CHWs experienced in their communities. Support for basic materials and equipment was clearly insufficient.

7.8 Referrals between community health workers and local health teams

Most (94%) of the CHWs usually refer sick people to their local health services. In the month prior to the survey, 45% had referred at least one patient and 30% had also accompanied the patient to the health services, with another 26% sending a note requesting medical care. Three quarters of CHWs knew whether the patient had attended, with 40% of referrals attending the same day and 34% the following day. To know more about what had happened to the patient, 87% had visited the family again and 19% had gone to the health centre. None of the CHWs had received a counter-referral from the local health services back to them. Of the patients referred to the health centre a half were treated at home. 36% of the CHWs had been requested by their local team to help with the treatment and 39% of them decided spontaneously to visit the patient and to help in his/her treatment (Figure 7.5). During the household visit three quarters said they gave medicines to the patient according to the

medical prescription and the rest gave general recommendations about the disease. 70% of CHWs asserted they had informed the local health team about the patients being treated at home.

CHWs usually referred sick people to their local health services but they had virtually never received any update back from them. The referral system from CHWs to the local health facilities seems to be working well but the feedback from local health team was not operating properly.

Table 7.5 **Availability of essential materials and equipments for community health workers. Sergipe, Brazil, 2000.**

Variable	CHWs
	(N=311)
ORT packs	84%
Child cards	90%
Weighing scale	91%
Bags	74%
Thermometer	43%
Pencils	48%

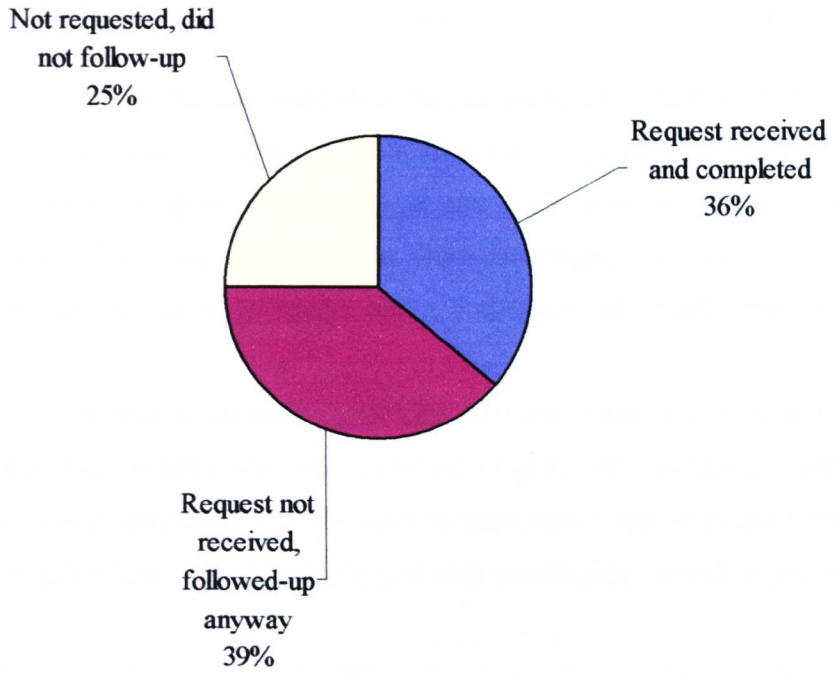
7.9 Abilities of community health workers and their knowledge about child survival

38% affirmed they did not feel a part of the local health team. The main reasons were that they did not received adequate supervision, support, or attention (36%), they worked alone in the community (21%) and they did not feel adequately respected and valued by their local health team (33%). About 10% mentioned that they had been professionally discriminated against by the local health team at some time. Nearly all CHWs (94%) felt more part of the community and 89% said that they were more comfortable in the community than in the local health services. Table 7.6 shows this information.

Figura 7.5

Doctors and nurses requests to community health workers for help in the patient's treatment at home. Sergipe, Brazil, 2000.

N=78



71% of CHWs confirmed that they believed in their own abilities, but 58% and 93% respectively mentioned that the local health teams and community believed in their ability.

52% and 70% of them asserted that the local health team and community provided adequate attention to them. However, 17% said that at some time they had been insulted by a member from the local health team and 45% by a member of the community.

Table 7.6 **Distribution amongst community health workers (CHWs) of feelings and perceptions on their work. Sergipe, Brazil, 2000.**

Variable	CHWs
	(N=311)
Do not feel a part of the local health team	38%
Reasons for these feelings:	(N=64)
Do not receive adequate supervision/support/attention	36%
Work alone and only in the community	21%
Are not respected/valued by other health workers	16%
Local health team say CHWs belong in the community	12%
Are discriminated against	8%
Others	5%

About 90% of all CHWs said they were able to recognise a child with diarrhoea with blood or pus and a child who was growing well. About three quarters said they were able to identify children needing medicines against fever and those who had rapid and/or difficult breathing. However, CHWs appeared to suffer from insufficient attention, isolation in the community, silent discrimination by health teams and a low self confidence in their own abilities.

Table 7.7 shows data about their knowledge, preference and preparation of ORT. All CHWs knew ORT from a pack but they preferred to give ORT prepared using a spoon because it is more easily available. Despite most of them being able to prepare ORT from a pack, only 63% recalled how to do it correctly and only a half were correct on preparing ORT using a spoon.

All CHWs knew the health cards. When they were shown a growth chart of a child aged six months old who had lost a kilogram in the last two months, only 29% said that the child was in danger. When shown another weight chart of a child born weighing two kilograms who was gaining weight but s/he was on the 10^{th} percentile at the age six months, only 8% of CHWs said that the child was improving.

Only 41% and 52% respectively of CHWs were able to correctly recognize a child with pneumonia using chest indrawing and rapid breathing as indicators.

In terms of child development, 43% correctly identified the appropriate age to refer a child to the health services if s/he was not standing-up alone and 66% of CHWs also said that an 18 months old child who cannot say an entire word should be referred to the doctor.

Table 7.7 **Distribution of community health workers according to their knowledge about oral rehydration therapy (ORT). Sergipe, Brazil, 2000.**

Variable	CHWs
Knowledge of preparation of oral rehydration therapy:	(N=311)
- From pack	100%
- Prepared using spoon	88%
- From pharmacy	74%
Type of oral rehydration therapy preferred by them:	
- Using spoon	43%
- Pack	38%
- Pharmacy	4%
CHWs who correctly recalled how to prepare ORT using :	
- Packet (N=299)	63%
- Spoon (N=310)	52%

Nearly three quarters (72%) of CHWs reported that exclusive breastfeeding was recommended until six months of age and 85% said that it was not good for a child aged one month to receive breast milk plus tea and/or water alone. Finally, 42% and 81% respectively claimed that bottle feeding and pacifiers should never be recommended for young children.

CHWs said all mothers should have antenatal care and 41% mentioned that the antenatal care should start during the first semester of pregnancy, 88% affirmed that there should be at least five medical antenatal check-ups, 92% that the first pregnancy should receive three doses of vaccine against neonatal tetanus and 85% that mothers should have urine, faecal and blood tests. Almost all CHWs reported that during the antenatal period every mother should have their blood pressure measured and receive guidance about delivery and breastfeeding practices.

All CHWs mentioned that all children aged eight months should be vaccinated against poliomyelitis, while 82% mentioned diphtheria, tetanus and whooping cough and 94% tuberculosis, but it was only 24% for measles. Finally, only 55% of CHWs knew about BCG vaccine and which disease it protects against, how it is injected, and how to confirm vaccination status by BCG without having a child's health card.

In general, although CHW's knowledge on child survival appeared to be reasonable it could be strengthened, particularly as regards the preparation of ORT, infant growth monitoring and immunization against measles and tuberculosis.

7.10 Job satisfaction, fringe benefits and salary

Most of CHWs (84%) were satisfied with their job and only a few (9%) said they were dissatisfied. Among the satisfied, a half said that they could help people, 15% felt useful to the community and 13% said they helped to avoid serious diseases. Among those who were not satisfied, a half mentioned that the salary was too low and a quarter that they were not working in adequate and/or appropriate conditions. Table 7.8 shows others reasons mentioned by them.

Table 7.8 Comments by community health workers on their job satisfaction. Sergipe, Brazil, 2000.

Variable	CHWs
	(N=311)
Were satisfied with their job	84%
Reasons to be satisfied:	(N=260)
- Helping people	49%
- Useful for the community	15%
- Reduce severity of diseases	13%
- Are important for the local people	10%
- Are learning about health	7%
- Others	7 %
Reasons to be dissatisfied:	(N=27)
- Salary is too low	51%
- Working in inappropriate conditions	30%
- It is not a profession	14%
- Others	5%

For salary, 15% of CHWs received less than one minimum wage per month, 33% had one minimum wage and about a half (52%) between 1 and 1.5 minimum wages per month. The mean and median for their salary was about US$ 90 dollars per month. Only one quarter of them had fringe benefits and job security while 71% had one month of holiday per year. Three quarters of them were hired by the local authority and the rest by NGOs.

The salary received by CHW's reflects one of the greatest inequities in the Brazilian health system. They have fewer fringe benefits and receive the lowest salary amongst the health team. Their job is not recognised as professional and one in six even receive a salary less than the minimum wage permitted by the federal constitution. It seems strange, therefore, that despite the many problems they identified that so many were satisfied with their job.

7.11 Assessing effectiveness of community health worker visits to households

Since many questions were raised on the affects of CHWs visiting households, it is important to estimate the effectiveness of such visits.

The following analysis using logistic regression aimed to evaluate the effect of visits by CHWs on maternal and child health indicators in the State of Sergipe. Outcomes and independent variables are listed below and criteria for inclusion of a variable in the model as a confounding factor are also given. Results of unadjusted and adjusted analysis are also provided.

The analysis carried out here consists of a comparison of maternal and child health indicators between children who were being visited by CHWs with children not visited by them in the same census tract.

The analysis is based on the census tract, which is the smallest division of the Brazilian territory, after regions, states and municipalities. In urban areas, a census tract can include 200-300 households and its borders are defined by streets and avenues. In rural areas, the borders of census tract are usually defined by rivers, mountains and roads and the number of households in each tract varies greatly. The analysis included 1,700 children under five years old from all 21 municipalities sampled. Among these children, 1,385 (81%) were being visited by CHWs and 315 (19%) were not. All these children were living in 138 (77%) census tracts included in the study. Census tracts where households were not being visited by CHWs and those tracts where all households were being visited by CHWs were excluded from this analysis. This was done to ensure that like was compared to like. In Sergipe, the number of census tracts per municipality varies from 6 to 400. For example, Santa Rosa de Lima has six census tracts, with tracts 2, 3, and 4 being urban while 1, 5 and 6 are rural (Figure 7.6). This municipality was being partially covered by CHWs. For instance, in census tracts 1 and 2, some children included in the study were being visited by CHWs, while in census tracts 3 and 4, all children sampled were receiving visits from CHWs while in the census tracts 5 and 6 there was no active CHWs performing household visits.

All census tracts from Santa Rosa de Lima are represented in Figure 7.6 where the four square boxes represent households. The white boxes represent households visited by CHWs while the other households are not visited by them. In census tract 1, only household 'd' was being visited, while in census tract 2, households 'b' and 'd' were receiving CHW visits. Since there was no variability for visits in census tracts 3, 4, 5 and 6, they were excluded from the analysis. The standard logistic regression model compared maternal and

child health indicators between children living in households 1d, 2b and 2d versus those living in households 1a, 1b, 1c, 2a and 2c.

To restrict comparison to children living within each census tract, fixed effects conditional logistic regression was used. With this approach, the outcomes for children living in household 1d were tested against outcomes for children living in the households 1a, 1b, and 1c. For the census tract 2, children living in households 2b and 2d were compared against children from 2a and 2c. The same procedure was used for other census tracts within which there was variation in CHWs visits. The fixed effects model de facto controls for all variables that take the same value for everyone living in same census tract. These variables include distance from health facilities, socioeconomic and environmental factors that tend to be clustered, whether or not these factors were measured by the study. In addition to control of cluster-specific confounding variables, several measured demographic, socioeconomic and environmental factors were formally controlled for, by adding them as covariates in the regression models, as described below.

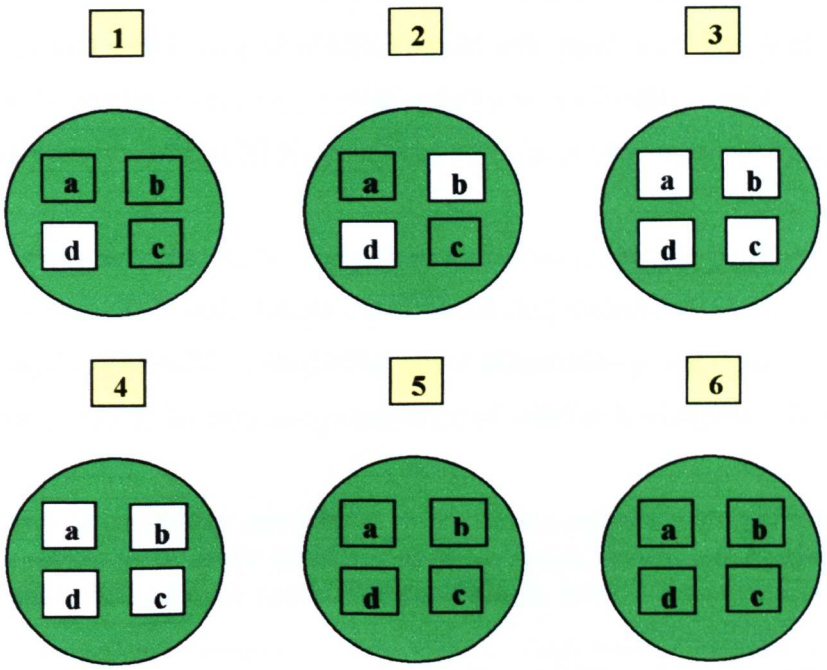
This analysis was done using fixed effects logistic regression conditional on census tract of residence (Stata Corp 2001). This is similar to standard logistic regression (H + L), except all estimates are based on within-census tract comparison. The next section explains how this analysis was done.

Initially, all outcome variables - for instance low birth weight or hospitalization rate in the previous twelve months - were tested against the independent variable (CHW visits). Other variables associated with both the outcomes and the independent variable ($P <= 0.10$) were considered as confounding factors, and were adjusted for during the analyses (Rothman & Greenland 1998). These included children's age, mother's schooling level, family income, and type of housing materials. Other variables were also tested but were not associated with either the outcomes or with CHW visits, and therefore could not confound the analyses of interest. These included father's education, overcrowding, number of children under five years old, number of antenatal check-ups with doctor, Immunization against neonatal tetanus, birth weight, postnatal check-up with doctor, hospital admission in the last 12 months, use of ORT during diarrhoea episodes, looking for health care outside the home in the last 15 days, time waiting to be attended, medical consultation in the last three months, diet and breastfeeding, basic immunization, death of children under five years old at home and knowledge about child survival (Panel 7.2).

Odds ratios (OR) were calculated with 95% confidence intervals and the chi-square test was used for contingency tables. The significance level was measured by the likelihood ratio statistic test (Stata Corp 2001).

The maternal and child outcomes significantly associated with visits performed by CHWs, in the crude analyses, are shown in Panel 7.1 below. Table 7.9 shows the results of the crude and adjusted analyses.

Figure 7.6 **Schematic representation of census tracts with households represented by the boxes for the municipality of Santa Rosa de Lima, Sergipe, Brazil, 2000.**



Panel 7.1 **Outcomes significantly associated with effect of CHWs' visits and confounding factors* adjusted for in multiple logistic regression model. Sergipe, Brazil, 2000.**

Variables
• **Maternal outcomes:** - recognition of ORT from packs; - counselling about breastfeeding; - antenatal care delivery; - ultrasound during pregnancy and - started antenatal check-ups with a doctor in the first trimester of pregnancy. • **Child outcomes:** - receiving vitamin A more frequently in the last six months; - had been weighed in the previous four weeks

* Children's age, mother's schooling level, family income and type of housing materials.

Mothers whose children were being visited by a CHW showed an adjusted OR of 1.9 (1.1 - 3.4) for recognizing ORT from packs (Table 7.9). They were also about 1.7 times more likely to have received counselling about breastfeeding and normal delivery during antenatal care check-ups. Ultrasound examination during the pregnancy was 1.8 (1.1 - 3.0) times more likely to have occurred among mothers who were being visited by CHWs. Coverage of vitamin A in the last six months before the interview was 1.9 (1.2 - 2.9) times higher among children aged 6-59 months who were being visited by CHWs. The highest odds ratio observed was for growth monitoring of children under two years old. The probability of having been weighed in the last four weeks (either at home or in a facility) was 4.3 (2.8 – 6.5) times higher for children visited by CHWs compared with those who were not being visited (Table 7.9).

This analysis suggests that visits performed by CHWs do have a positive effect on several important maternal and child outcome service delivery indicators. The knowledge of mothers about recognition of ORT, counselling about breastfeeding and type of delivery, ultrasound examination during the pregnancy, provision of vitamin A and growth monitoring.

Table 7.9 Health activities associated with community health workers visits compared to other children in same block, expressed as unadjusted and adjusted odds ratios. Sergipe, Brazil, 2000.

Outcome	Unadjusted OR P-value	Adjusted✦ OR P-value
Mothers:		
Recognised ORT from packs	1.69 (1.00 - 2.93)*	1.92 (1.09 - 3.39)*
Received counselling during antenatal care about:		
- breastfeeding	1.74 (1.05 - 2.87)*	1.78 (1.07 - 2.94)*
- type of delivery during antenatal care	1.64 (1.12 - 2.40)*	1.69 (1.15 - 2.49)**
Had ultrasound during pregnancy	1.87 (1.15 - 3.03)*	1.81 (1.11 - 2.96)*
Started antenatal care in the first trimester	1.74 (1.21 - 2.48)**	1.06 (0.60 - 1.86)
Children:		
Received vitamin A in last six months◘	1.49 (1.00 - 2.18)*	1.89 (1.21 - 2.95)**
Weighed during last four weeks◆	4.18 (2.74 - 6.15)**	4.27 (2,79 – 6,54)**

*P<0.05 **P<0.01

✦ Adjusted for children's age, mother's schooling level, family income, type of housing materials.

◘ Only for children aged 6-59 months (N=1298)

◆ Only for children aged 0 - 23 months (N=651)

After adjusting for children's age and some socioeconomic variables, CHWs visits did not have a significant effect on variables listed above in Panel 7.2. For many of these

variables, such as birth weight, it does not see reasonable to expect any effect of CHWs interventions. Birth weight is a result of interactions among many factors. For others such as immunization, it is difficult to detect an effect because coverage among underfives is Brazil is very high in all social strata. Others variables such as time waiting to be attended to in health facilities depend more on health care system characteristics than on the action of CHWs. For the remaining variables, including breastfeeding and diet, CHWs did not appear to be effective, possibly because of inadequate training and supervision, or lack of motivation.

Panel 7.2 **Outcomes not significantly associated with effect of CHWs' visits and confounding factors* adjusted for in multiple logistic regression model. Sergipe, Brazil, 2000.**

Variables
- Number of antenatal check-ups with doctor
- Immunization against neonatal tetanus
- Birth weight
- Postnatal check-up with doctor
- Hospital admission in the last 12 months
- Use of ORT during diarrhoea episodes
- Looking for health care outside home in the last 15 days
- Time waiting to be attended
- Receiving free medicine
- Medical consultation in the last three months
- Diet and breastfeeding
- Basic immunization
- Death of children under five years old at home
- Knowledge about child survival:
- ORS prepared using measuring spoon
- interpretation of growth curve
- recognition of danger signals
- situations in which a child should be referred
- basic immunization
- breastfeeding and diet
- antenatal care

* Children's age, mother's schooling level, family income and type of house construction

7.12 Conclusions

CHWs in Sergipe have to face many challenges (see Panel 7.3). Being selected for training is the first hurdle, because in most municipalities there are many candidates for each vacancy. Despite having the lowest schooling level amongst all health staff in the local health teams, being inadequately trained, poorly supervised and insufficiently supported, CHWs have a large number of health tasks that they are expected to perform. CHWs do seem to have

good relations within their communities, mainly because they live locally, know their community very well, and provide essential local services. On the other hand, CHWs were found to be working alone in the communities and to lack confidence about their abilities. Although they do refer sick people to local health services, the system does not appear to be operating properly and part of this deficiency can be attributed to the health centre staff. CHWs' knowledge about child survival could be strengthened, their relationship with the local health team improved and their self confidence strengthened. Their salary reflects the great inequities in the Brazilian health system and one in six of them received a salary less than that permitted by the federal constitution. Despite these problems, they were largely satisfied and this was probably because of the opportunity to do a rewarding job in their municipalities. Despite all the limitations affecting CHW tasks, the analyses presented here show that they were effective in improving the knowledge of mothers about some important aspects of child survival. These findings are important because the effectiveness of CHWs is usually assumed but not demonstrated. Confounding factors are often not controlled for in the analysis. The CHWs programmes in Sergipe have to be re-evaluated, their tasks redefined, knowledge in maternal and child health improved, and integration with local health team strengthened.

Panel 7.3 Key findings from the survey of community health workers.

- CHWs were often poorly trained, supervised and supported and were usually working alone in the community;
- Felt they had a temporary job because they work on short contracts, are not recognised as professionals and only receive a low salary, with no fringe benefits;
- Usually they refer sick people to the local health service but they did not receive any feedback from health workers;
- Believe that to they gain respect from the community they need to undertake more curative tasks i.e. bandaging or work measuring blood pressure in adults;
- Visits performed by CHWs had a positive effect on knowledge of mothers about recognition of ORT, counselling about breastfeeding and type of delivery, ultrasound examination during the pregnancy, provision of vitamin A and weighing among their children.

7.13 References

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Chapter Eight:

Study Three: Perceptions and beliefs

8.1 Introduction

This chapter presents the findings on the perceptions and beliefs of mothers of children under five years old, CHWs and professional health workers. This information was obtained by using qualitative research methods, including in-depth and key informant interviews and focus groups discussions (FGDs). The chapter describes, firstly, the mothers of children under five years old, community health workers (CHWs) and then facility workers from municipal department of health; secondly, evaluates the current situation for prospects for further integration between the community, CHWs and health services in order to extend IMCI at household level.

The chapter starts by presenting the main characteristics of the people interviewed: mothers of children under five years old, community health workers and health services staff, including heads of municipal department of health, doctors and nurses. This is followed by perceptions of the existing integration between the community, CHWs and local health services (LHS).

8.2 Characteristics of people included in the qualitative study

A total of 90 people were enrolled in this qualitative study, including 43 mothers of children under five years old who participated in six FGDs; 28 CHWs were interviwed; and 19 heads of municipal departments of health, 17 medical doctors and 26 nurses were also interviwed. Some of their main characteristics are summarized in tables 8.1 and 8.2 below. Other information is referred to only in the text.

Table 8.1 shows data about mothers of children under five years who participated in the FGDs. All mothers were asked to give their perceptions and beliefs about their local CHWs and their local health services, including local doctors and nurses. The FGDs included mothers with different characteristics in terms of age, number of children, schooling level, family income and place of residence, because it was assumed that such differences would reveal different needs and perceptions about health care.

Five of the FGDs included seven mothers and another had eight mothers. Three groups were held in the metropolitan area, which includes the capital of the State, and the rest were in the interior. In the metropolitan area, two were carried out in Aracaju, with one in a

slum area with mothers on very low family incomes and having low schooling levels, while the other FGD was with mothers in better socioeconomic circunstances. The last FGD was held in São Cristóvão, where mothers belonged to families with low-to-intermediate family incomes and schooling levels.

Among the three groups held in the interior, one was carried out in the urban area of Santa Rosa de Lima, one of the least populous municipalities in Sergipe but where family incomes and schooling levels were relatively good. Another FGD took place in a very poor village in the rural area of Lagarto, the third most populous municipality in the State. Finally, the last FGD was carried out with mothers living in the rural area of Gararu, a middle ranked municipality located in the Sertão or semi-arid area.

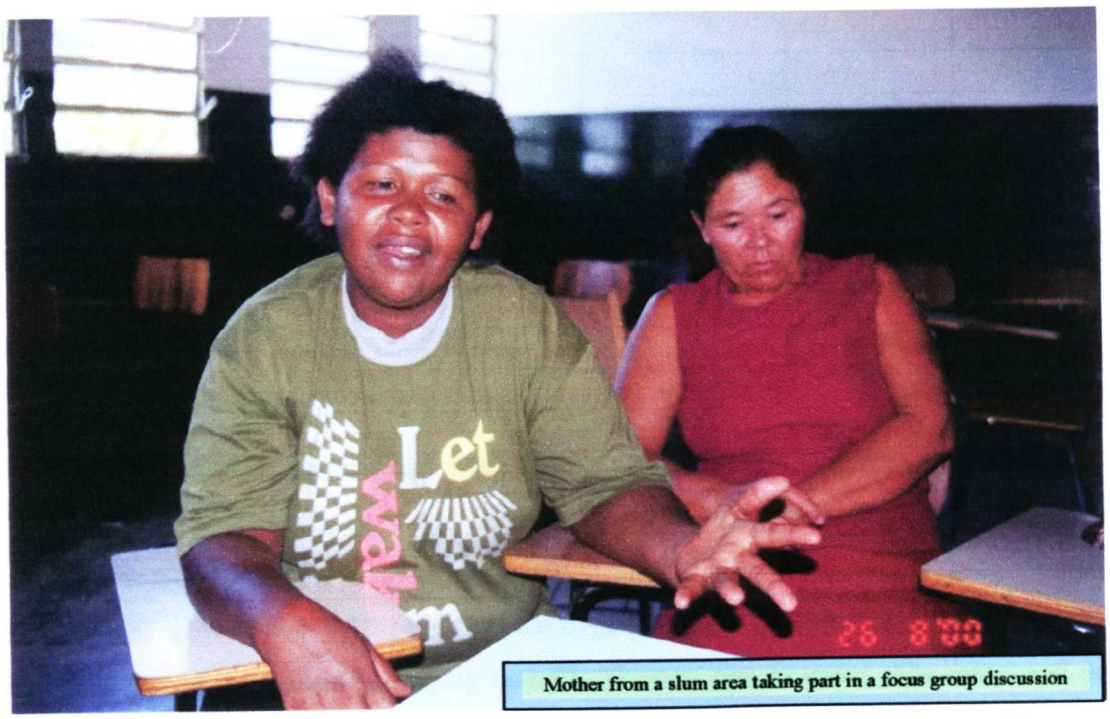
Table 8.1 Main characteristics of mothers of children under five years old who participated in the focus groups discussions. Sergipe, Brazil, 2000.

Municipalities where focus groups discussion were carried out	Mothers (N)	Mean median (and range)			
		Age	Number of children	Schooling years	Family income in U.S. dollars/month
Aracaju (The capital) (slum)	07	25.9 27 (16-39)	2.9 2 (1-5)	2.3 1 (0-5)	49 100 (33-153)
Aracaju (urban)	07	28.9 31 (19-38)	2.3 3 (1-3)	10.6 11 (10-11)	315 333 (222-361)
São Cristóvão (urban)	08	26.6 27.5 (20-30)	3.2 3 (3-4)	4.4 4 (4-5)	116 100 (84-222)
Santa Rosa de Lima (urban)	07	32.7 31 (26-43)	2.4 2 (1-5)	6.7 6 (5-10)	154 161 (84-252)
Lagarto (rural)	07	40.6 42 (36-43)	8.3 7 (6-14)	1.4 0 (0-3)	72 67 (28-100)
Gararu (rural)	07	23.1 23 (18-27)	2.0 2 (1-3)	2.6 3 (1-4)	90 83 (44-167)

Four of the six FGDs were similar with mothers being less than 30 years old, having less than three children and not more than four years of schooling. Their family income was lower than the majority of the Sergipian families. The other two FGDs showed better indicators, mainly in terms of schooling level and family income.

Among 28 CHWs interviewed, 68% (19) were female, 61% (17) were married and their mean and the median age was 27 and 25 years old respectively. All were living in the

same community where they were working. They had been active for about 30 months as CHWs in the PACS or PSF, with 43% (12) of them had been in both programmes. Their mean and median salary per month was about US$68, ranging from US$57 to US$77. Nearly 60% (16) of them were active in the urban areas and the rest in the interior. Their mean and median in full years of schooling level was 9 and 8 years respectively, ranging from 3 to 13 years.



Mother from a slum area taking part in a focus group discussion

Heads of municipal health services were predominantly male with a mean and the median age of about 50 years. Those interviwed included medical doctors (7), dentists (3) and almost two thirds (12) of them had been acting as heads of their sections since the current mayor's term began, about 3,5 years previously. About two thirds (68% or 13 - of out 19-) of them said that they knew something of IMCI.

Among 17 doctors in the health services who were interviewed, 76% (13) were female, and their mean and the median age was about 38 years old. They had been working in the PSF for nearly 20 months and their salary was about US$1,240 per month, ranging from US$1,140 to US$1,640 U.S. dollars (Table 8.2). Ten (59%) had finished their medical course at least 10 years before, seven had completed residency in paediatrics and three in gynaecology and obstetrics. The others were general practitioners. 65% (11) of these doctors had been trained in IMCI.

Table 8.2 Main characteristics of people interviewed using qualitative interviews. Sergipe, Brazil, 2000.

Variable	Heads (N=19)	Doctors* (N=17)	Nurses (N=26)	CHWs (N=28)
Sex				
Male	63% (12)	24% (4)	4% (1)	32% (9)
Female	37% (7)	76% (13)	96% (25)	68% (19)
Age (years)				
Mean (SD)	48 (9)	38 (10)	36 (6)	27 (5)
Median	47	37	36	25
Time (months) active in the PACS/PSF	-	*only in the PSF		
Mean (SD)	-	21 (17)	25 (15)	33 (14)
Median		18	23	30
Montly salary in US dollars	-			
Mean (SD)	-	1,240 (153)	753 (167)	66 (4)
Median		1,136	750	68

Almost all nurses interviewed were female (25 of out 26) and their mean and the median age was 36 years old. They had been active in the PACS or in the PSF for about 24 months (mean and median) and their mean salary was US$750 U.S dollars, ranging from US$430 to US$1,140 (Table 8.1). 54% (14) were active in the PSF and the rest in the PACS. 47% (12) had completed their qualifying courses 10 years ago or more. The mean and the median number of CHWs coordinated by them in the PACS and PSF were 17 and 9 respectively, ranging from 5 to 47. Over 80% (21) of them had been trained in IMCI.

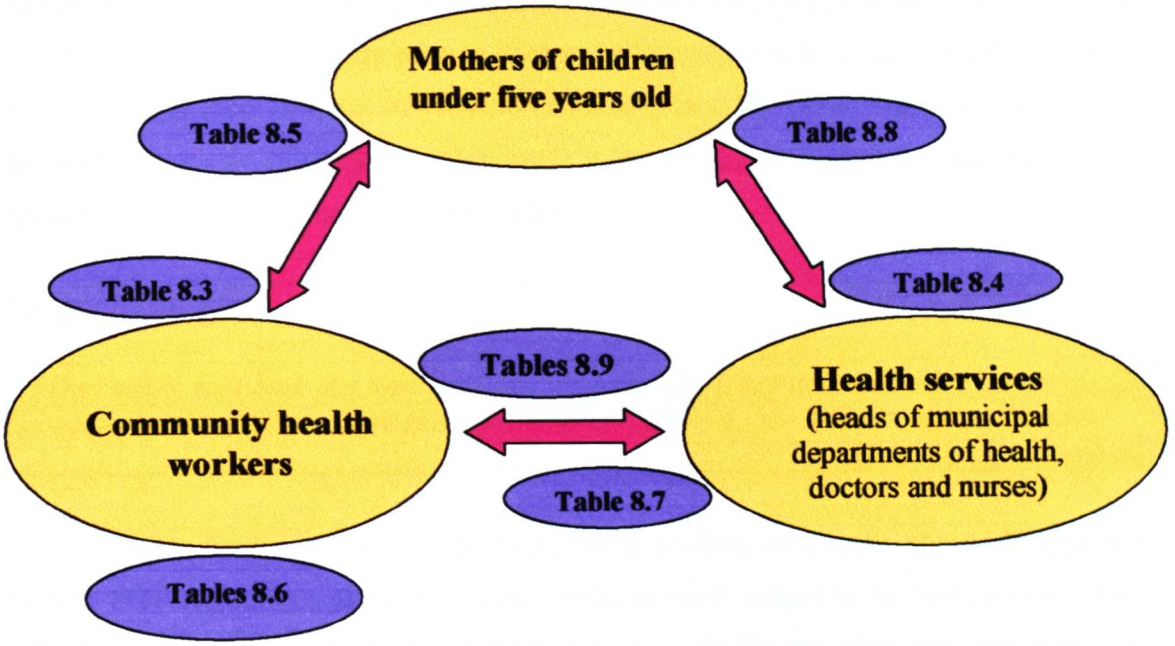
Except for the municipal heads, females predominated among the doctors, nurses, and CHWs interviewed. Doctors' salaries were 1.6 times higher than nurses' salary and 19 times higher than CHWs' salary. In terms of mean, length of service, CHWs had been active for the longest time in the programmes.

8.3 Perceptions between mothers, community health workers and local health services

To assess integration between the community, especially for mothers of children under five years old and the CHWs and local health services, a range of people were interviewed. Mothers of children under five years old were included in FGDs while heads of municipal departments of health, doctors, nurses and CHWs were interviewed using in-depth and expert interviews.

It was assumed that some integration already existed, as schematically represented in Figure 8.1 below.

Figure 8.1 Relationship of perceptions between mothers, community health workers and health services.



The main aspects mentioned in the qualitative interviews about these topics were grouped and are described below in Tables 8.3 to Table 8.11 At the end of the chapter, a summary is given on the most relevant aspects shown in these tables. The findings are presented using text, tables, figures and extracts of interviews that refer to specific situations and/or topics under investigation. These extracts were translated from Portuguese into English and have been selected to reinforce the most important ideas expressed by the interviewees.

Finally, comments by health workers or local health teams are referred to. They include the heads of municipal departments of health, doctors and nurses, but exclude the CHWs. This was done because CHWs are the core of this investigation and their role in the health system is addressed separately so as to identify how they might be utilised for the extension of IMCI to the community.

8.4 Perceptions of mothers in the local communities

8.4.1 Mothers perceptions of community health workers

Mothers were asked for their perceptions and opinions about CHWs. Excerpts 8.1 and Table 8.3 show that urban mothers from metro and capital areas are not satisfied with CHW's performance. For these mothers, CHWs have poor knowledge, are unable to solve real problems and provide counselling that in general are ineffective and not different from non-health workers (Excerpt 8.1). These mothers have better socioeconomic level and easy access to more skilled health workers such as doctors and nurses. For this reason, CHWs seems no to be useful to them in terms of provision of health care. However, some of them mention that CHWs are valuable making appointment with nurses and doctors and noticing mothers about health campaigns such as immunization.

☛ Excerpt 8.1:

"[The] CHW isn't bad, she does not have much to do, [she] does not solve anything, she gives counselling like my mum gives me, like my mother-in-law and like my neighbours."

Nubia (urban mother)

Mother from rural and slums areas made positive comments about all aspects of CHWs, even regarding their effectiveness which is often judged to be limited (See excerpt 8.2). Usually in these areas, health facilities are not available, are open only part time or are distant from their homes. CHWs live in the same community, are monthly visiting all families, offering basic health care and facilitating their contact with health workers. CHWs are highly available and easily accessible in settings where health care is scarce. These characteristics contribute to great acceptability and good relationship between these mothers and CHWs in these areas (See Excerpt 8.2).

☛ Excerpt 8.2:

"Luiz, our CHW, he works a lot with us. For me he seems like a doctor... I would not trade Luiz for a common doctor. He is our friend... he is the godfather of our children... many of our children are running here in this muddy street because of Luiz... dozens of times when they [children] *were sick Luiz put one of us with the sick child on his old bicycle and brought us to the hospital."*

Josefa (rural mother)

Almost all mothers were favourable to extension of IMCI to the community, but different from mothers living in rural and slums areas, those from urban areas are not

convinced that CHWs will be able to do this extension properly. (See Table 8.3). This perception may be result of local health care need, availability of CHWs and good relationships between CHWs and mothers. In many of these settings, CHWs are often the only health care provider. For this reason, they are highly valuable by these mothers.

Table 8.3 Agreement from mothers about community health workers in the focus groups discussions. Sergipe, Brazil, 2000.

Topics addressed	Characteristic of the area where the focus groups discussions were carried out					
	Capital		Metro	Interior		
	Slum	Urban	Urban	Urban	Rural	Rural
Easy access/high availability	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Showed interest	✓✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓✓
Were reliable	✓✓✓	✓	✓	✓✓	✓✓✓	✓✓✓
Were useful	✓✓✓	✓	✓	✓✓	✓✓✓	✓✓✓
Were effective	✓✓	✓	✓	✓	✓✓	✓✓✓
Have good relationships	✓✓✓	✓✓	✓✓	✓✓✓	✓✓✓	✓✓✓
Satisfied	✓✓✓	✓	✓	✓✓	✓✓✓	✓✓✓
Able to extend IMCI	✓✓✓	✓	✓	✓✓	✓✓✓	✓✓✓

Agreement by respondents: All or most ✓✓✓, most ✓✓, or some ✓

8.4.2 Mothers perceptions of health services

The focus groups were asked to discuss what were the positive and negative aspects of their local health facilities, which were typically staffed by doctors, nurses and health auxiliaries. Slum dwellers were very positive because the local health centre in their area had been recently established. However, other mothers were not satisfied with health care provided in their local health centre. Almost all mothers mentioned that availability of doctors and nurses was low, quality of care provided and local support was poor and relationship between facility workers and mothers was tense (Excerpt 8.3 and Table 8.4). This can be attributed to inappropriate use of health facilities made by mothers, excessive number of people to be covered by local health team, frequent unavailability of doctors and absence of participation of health team in community activities. In case of rural areas, the core of dissatisfaction was difficult access to health facility.

Notwithstanding all limitations mentioned, almost all mothers referred that facility workers, especially doctors, were effective. This is explained because health workers at health centres usually dealt well with common diseases, such as managing diarrhoea and acute upper respiratory infections and also because many of them are self limited (Table 8.4).

☛ **Excerpt 8.3:**

"If you are in a health centre and the child isn't dying yet, they do not attend you. Low fever, starting to vomit, forget about it... To be attended, you have to say [to lie] *that the child was burning from fever, that she* [child] *is vomiting everything, evacuating hundred times a day...."*

Sueli (urban mother)

"[Talking about the local health service*] ... there is no medicine... doctors are lacking...and sometimes to be attended you have to use 'ignorance'."*
Interviewer: "What do you mean?"
Joseilde: [It means that] *you have to be rude, to be aggressive, to talk aloud, to scream if necessary.... enter into rooms without knocking on the door ...* [also] *you have to threaten them saying that you will call the radio and TV station to invite a reporter to come there and to say that they are refusing to attend a sick person.... they* [health workers] *do not like scandals, exposure... and then they do it."*

Josenira (urban mother)

"We have a lot of people dying here but we do not have a doctor... I believe in the next few days they will send us a doctor ... and a dentist to cure our teeth but one day after the election they will disappear...Doctors that they send here are bad... they do not auscultate our children and have a revulsion for them, touching them with their finger tips only!"

Zefinha (rural mother)

Table 8.4 Agreement of mothers about local health services in the focus groups discussions. Sergipe, Brazil, 2000.

Topics addressed	Characteristic of the area where the focus groups discussions were carried out					
	Capital		Metro	Interior		
	Slum	Urban	Urban	Urban	Rural	Rural
Easy geographical access	✓✓✓	✓✓✓	✓✓✓	✓✓	✓	✓
High availability	✓✓✓	✓	✓	✓	✓	✓
High quality	✓✓✓	✓	✓	✓	✓	✓
Adequate health system support	✓✓	✓	✓	✓	✓	✓
Effectiveness	✓✓	✓✓	✓✓	✓✓✓	✓✓✓	✓✓
Good relationship	✓✓✓	✓	✓	✓	✓	✓
Satisfied	✓✓✓	✓	✓	✓	✓	✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

8.5 Perceptions of community health workers

8.5.1 Community health workers perceptions about mothers of children under five years old

CHWs, particularly those from urban areas, made many negative comments about utilization of health services by mothers. They believe some mothers make inadequate use of health facilities, are disrespectful with them and do not take part in health services activities

(Excerpt 8.4a and Table 8.5).

These mothers have better availability of doctors and nurses and are more demanding in terms of health needs. Health care offered by CHWs seems not to be enough to them. In general these mothers look for specialist doctors and sophisticated technology (Table 8.4). This scenario is not appropriate for a typical Brazilian CHW because they are only trained to offer very simple curative care or to say what mothers have to do or not to do regarding to child health (See Chapter Seven). In these settings, messages about health education, prevention and promotion will be more appropriate but CHWs seems not to be able to do it properly because they were not trained for. It was demonstrated on Chapter Seven.

However, in rural areas mothers and CHWs are more integrated. Excerpt 8.4b and Table 8.5 show this clearly. More need in terms of health care in these areas, extensive use of CHWs that become them more valuated and useful seems to be the main responsible for good relationship between CHWs and mothers.

According to CHWs, mothers are the core of utilization of health facilities by the community. Mothers, mainly those from urban areas, are demanding and make inappropriate use of health facilities. As seen on Chapter Six, mothers provide first care at household level and decide when to referral sick children to health services. For this reason, CHWs believe that mothers are the key person to invest in terms of health education and to promote rational use of health facilities.

☛ Excerpt 8.4a:

"When I talk, they (mothers) *don't believe me and also do not give attention... Also, if they want something I have to do it now, they don't have patience... more we give, more they want... To mothers, we are lazy and don't know anything but if they see us they ask for something... I don't believe!"*

Juan (urban CHW)

☛ Excerpt 8.4b:

"Some days ago, I realized that in my area they needed a car to bring old people for vaccination at the health services... I said to mothers to help me listing people to be vaccinated... and they did. Then, I gave the list to my boss and he sent a nurse to give vaccines to them"

Ana (rural CHW)

CHWs are undoubtedly more valuated among non-served people. For this reason, they have good relationships with mothers from rural and slum areas. Because mothers from

urban areas have easy access to doctors and CHWs have poor knowledge on child survival, they are not useful for mothers, who use them as a linking between health facilities and community. In this situation, they do no feel valuated and their relationship is conflicting.

Table 8.5 Agreement of community health workers about the utilization of health services by the community. Sergipe, Brazil, 2000.

Community health workers said about community mothers:	CHWs (N=28)
• Demand on health services:	
- The more you do the more they want or demand	✓✓✓
- They act as if they own the local health services	✓✓
- For them, health services should be open 24 hours/day	✓✓✓
- They have urgent needs for health care all the time	✓✓
• Participation and understanding about local health services:	
- They have to be educated more about how to use health services	✓✓
- The mother is the key-person to invest in health education	✓✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

8.5.2 Community health workers perceptions about themselves

CHWs are aware about their strengths and weakness. This is shown on excerpts 8.5 and 8.6 and Table 8.6. They started to work without to know exactly what they have to do during their household visits. For this reason, CHWs were not confident during their initial visits. This lack of confidence is results of inadequate training, which do not cover the main topics that CHWs have to address during their visits and is concentrated on filling forms to the central government. Their supervision is also poor because they usually work alone in the community and do not have frequent meeting with facility workers and refresher courses were rare. Finally, support for CHWs is also inadequate. Essential material such as ORT packs, thermometer and weighing scale are lacking. They also complained about giving too much counselling rather than providing actual care as requested by mothers. It was demonstrated on Chapter Seven, sections 7.6 and 7.7. These limitations are the main responsible for their poor performance.

☛ Excerpt 8.5:

"In the beginning it was very difficult [to do the visits], *I didn't have a subject to talk on and when I had, I didn't know much about it* ... [also] *I didn't have any intimacy with families. Even to enter a home was difficult, I shuddered like a green-stick... nowadays we have intimacy, we talk about other problems not only diseases... now we are friends and confidants."*

Poliana (rural CHW)

Table 8.6 Positive and negative opinion of community health workers about themselves. Sergipe, Brazil, 2000.

Positive comments: For community health workers, they:	CHWs (N=28)
• Scope of work:	
- Are able to mobilize the community quickly, especially mothers	✓✓✓
- Believe that they have potential to do more, including curative tasks	✓✓✓
- Have favourable perspective about extending the IMCI to the community	✓✓✓
- Would like to give more interventions and less counselling	✓✓✓
• Knowledge/self confidence:	
- Know the community better than any other persons from the local health service	✓✓✓
- Are confident about their ability to disseminate information in the community	✓✓
- Like their job because they feel important and useful into the community	✓✓✓
• Relationship with community and local health team:	
- Have high availability and easy access to community and local health team	✓✓✓
- Have good relationships in the community, especially mothers	✓✓✓
- Feel happy and more useful when they participate in household visits with the health team	✓✓
Negative comments: For community health workers, they:	
• Scope of the work:	
- Have an excessive number of tasks	✓✓✓
- Spent a lot of time filling forms	✓✓✓
- Do not know exactly what they do or should do	✓✓
- Only act as messengers between community and health services	✓✓✓
- Do not solve 'real problems'	✓✓✓
•Knowledge/Self confidence:	
- Are the least important people in the health service	✓✓
- Have poor knowledge about health matters	✓
- Are not confident about their abilities	✓✓
- In urban areas mothers often know more about health more than they do	✓✓
•Relationships with community and local health team:	
- Many intend to move to another job as soon as possible	✓✓
- Sometimes fell as if they inspector for families	✓
- Community belongs to them, but health centres belong to doctors and nurses	✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

On the other hand, CHWs are confident about their great capacity for to mobilize people and to disseminating information in the community. Immunization is a good example. In a very short time they can seek out mothers and their children for vaccination at the health centre. The more they are involved with the community the more they feel important. Their high availability to households to the community seems to be one of their most positive characteristics (Excerpt 8.5 and Table 8.6 for positive and negative opinions about themselves).

Despite of messages are conflicting, negative feelings tend to be of a more general nature (e.g. poor overall level of knowledge) whereas the positive comments are usually more specific (e.g. able to mobilize the community rapidly).

☛ **Excerpt 8.6:**

"Usually CHWs study only during the period that they are being trained or during refresher courses ... and never more.... I think now [after five years] *I'm working well, I know the families, I'm confident but I intend to move to another job... with a better salary and all the benefits ... It's* [CHW] *a temporary job."*

Madalena (urban CHW)

Regarding the scope of work, CHWs feel that they have too many tasks and do not solve real problems, such as putting on bandages, but mostly act as messengers or a go-between for the mothers in the community and health facilities. In terms of their knowledge and abilities, in general, they are not confident. Also some CHWs intend to move to another job as soon as a good opportunity arises. Some mentioned that their relationships with other health workers were like being inspected. Finally, all the CHWs interviewed mentioned that the community belongs to them while health centres belong to health workers. Table 8.6 above summarizes this information.

Table 8.7 Opinion of community health workers about their job and their professional standing. Sergipe, Brazil, 2000.

What community health workers said about:	CHWs (N=28)
• Their job:	
- Training, support and refresher courses are inadequate	✓✓✓
- Have more tasks and responsibility than they are able to deal with	✓✓✓
- Not politically selected, but are under political pressure to back ruling party candidates	✓✓✓
• Their professional standing:	
- Salary is too low and neither are there job security or fringe benefits	✓✓✓
- Being a CHW is not a profession, it is only a temporary job	✓✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

Chapter Seven clearly shows that CHWs are not treated as a health worker by the Brazilian health sector. Their training, support and supervision are inadequate. Also, CHWs neither have job security nor fringe benefits and their tasks are not clearly defined. As a result, they do not have a defined role into the health and their impact on health indicators is reduced or even non existent. Table 8.7 shows that CHWs are aware about many of these limitations and for this reason almost all of them face their job as temporary.

8.5.3 Community health workers perceptions about health services, doctors and nurses

Because CHWs are aware about many limitations concerning their job, including working alone in the community, many of them establish a conflicting relationship with facility workers, especially doctors and nurses. These health workers are seen by CHWs as auditors or inspectors, rather than colleagues. The excerpts 8.7, 8.8 and Table 8.8 below show this conflicting relationship.

☛ Excerpt 8.7:

Transcription of a dialogue between a doctor, a patient and her CHW, observed by the interviewer in a health centre in an urban area:

Doctor: *"Who is your CHW?"*
Patient: *"It's Neilza"*
Doctor: *"Neilza, come here! Why didn't you do a previous booking for the patient?"*
Rosita: *"He became sick just now, last night!"*
Doctor: *"But I'm not seeing any urgency with him!"*
Rosita: *"But you haven't examined the patient yet!"*
Doctor: *"Listen to me: it's happening very often in your area. You are not doing your job properly. It is a lack of responsibility because if you were doing your job properly, this type of uproar would not be happening. This type of thing mustn't be repeated! It's very common in your area..."*
Rosita: *"Because my area is very poor!"*
Doctor: *"I'll attend this patient but remember, it's the last time!"*

☛ Excerpt 8.8:

Cassiana: "I like my job but the salary is very low... and we do not have fringe benefits, neither job security or holidays... we have a contract for a short time and we do not have any type of rights... if I lose my job I'm lost."
Interviewer: "How much do you receive per month? "
Cassiana: "Hundred-twenty five reais [about US$ 65]*."*
Interview: "Are you happy?"
Cassiana: "No... I would like to work more safely in terms of contract.... my job is temporary... Also I'd like to receive the benefits that all other health workers receive.... I'd like my salary to increase".

Cassiana (CHW, rural area)

Table 8.8 Opinion of community health workers about doctors and nurses. Sergipe, Brazil, 2000.

What community health workers said about:	CHWs (N=28)
• Team work (doctors and nurses):	
- Supervision is inadequate and sometimes inappropriate	✓✓✓
- Some nurses and many doctors do not work with CHWs in the community	✓✓✓
- Doctors and to a lesser extent nurses do not consider CHWs as part of the health team	✓✓
- Their are discriminated against by the health team	✓✓
- Tense relationships can exist between CHWs and doctors and nurses	✓✓
- Doctors and nurses are in general not their partners, but their auditors	✓✓
- CHWs are not adequately valued and respected by the health team, especially doctors	✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

8.6 Perceptions of health workers

8.6.1 Health workers perceptions about mothers of children under five years old in the community

Doctors, nurses and heads of municipal department of health are dissatisfied with the utilization of health services by mothers and with their participation in the local health facilities activities (Excerpt 8.9 and Table 8.9). Part of this misuse of health service can be attributed to the fact that mothers do not know exactly what each cadre do, poor knowledge of mothers in child health, easy geographical access to health services in urban areas and lack of education from mothers how to use health services properly.

☛ **Excerpt 8.9:**

"Communities do not know how to use health services... they extort our blood, our spirit...they do not take care for the health centre, they break benches, toilets, ... they do not have patience... for them, health workers should never go away on training."

Horácio (head)

"Many times they [especially mothers] *look for unnecessary medical consultations... and believe me they* [those frequently using the health service] *are the same people... they need to be educated on how to use health services* [properly]*."*

Gertrudes (urban nurse)

"They [people from the community] *are not interested in learning about health, health programmes... they do not participate... to participate, they have to gain something."*

Consuelo (urban doctor)

Another aspect mentioned by health workers is the absence of mother's participation in the local health services. To take part in meetings in the health centres leads to mothers

asking what type of things they will receive. In general, neither doctors or nurses do not take part in community's actions nor mothers take part in health services activities. For this reason, their integration is poor or even non-existent.

Table 8.9 Comments from health workers about the utilization of health services by mothers in the community. Sergipe, Brazil, 2000.

Health workers said about community mothers:	Heads (N=19)	Doctors (N=17)	Nurses (N=26)
• Demand on health services:			
- The more you do the more they want or demand	✓✓✓	✓✓✓	✓✓✓
- They act as if they own the local health services	✓✓✓	✓✓✓	✓✓
- If we do home visits once, we have to visit forever	✓✓	✓✓✓	✓✓✓
- For them, health services should be open 24 hours/day	✓✓✓	✓✓	✓✓✓
- They have urgent needs for health care all the time	✓✓✓	✓✓	✓✓
- They use health services unnecessarily	✓✓✓	✓✓✓	✓✓✓
• Participation and understanding about local health services:			
- They do not cooperate, do not participate	✓✓✓	✓✓✓	✓✓
- They need to receive something to participate	✓✓✓	✓✓✓	✓✓✓
- They have to be educated how to use health services	✓✓✓	✓✓✓	✓✓
- The mother is the key-person to invest in health education	✓✓✓	✓✓✓	✓✓✓
- They have a lot of local taboos and beliefs (customs)	✓✓	✓✓	✓✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

Despite these problems, all health workers agree that all important decision on child health is taken by mothers and for this reason they are the key-person into the community to invest in terms of how to use health services properly.

8.6.2 Health workers perceptions about community health workers

Heads of Municipal Department of Health, doctors and nurses provided many comments regarding CHWs (Excerpt 8.10 and Table 8.10). On the positive side, health workers recognize that CHWs are essential for disseminating information, linking health services to the community and to bring people to the health services. Health workers largely agree that CHWs are easily accessible and highly available to the community and that for these reasons they had established good relationships with mothers and their children. Different from others health workers, not only CHWs live in the community but also many of them were born there. Therefore, they know all families very well. Also, facility workers realized that reaching the community and mothers through CHWs has created a new scope for health interventions.

These characteristics are the main responsible for great acceptability of CHWs and

good relationship with mothers especially in rural areas. However, it is not result necessarily in better health indicators.

☛ Excerpt 8.10:

"CHWs created a new space within the health service and [they] *are reducing infant mortality... do you remember that a lot of children died because of diarrhoea in Brazil? Nowadays, in this municipality, the infant mortality rate due to diarrhoea is zero. I believe that in other municipalities* [with CHWs, the IMR due to diarrhoea] *is also zero... mainly because ORT is widely used by CHWs... All people know that CHWs have reduced infant mortality from diarrhoea. It is obvious! Also, here they* [CHWs] *contributed to improving antenatal care coverage... when they find a pregnant woman, if we do not have a doctor here, they send her to another municipality... Now, the* [health system] *machine will truly gear up because the CHWs have support from the PSF* [family health programme]*."*

Brenda (head)

"...CHWs are in the community every day, they work like ants. They are in the community all the time, they see if anyone is sick... sometimes [CHWs] *say: 'Doctor, my patient is not well today...', sometimes they tell me if the patient continues coughing or not. This is* [their] *small and interminable job... Also they live in the community where they work. This is important, it is fundamental* [for the CHWs' access and availability]*."*

Tonia (rural doctor)

As pointed by all facility workers, CHWs do not know exactly what they have to do during their household visits, are working alone in the community, are overloaded, they role into the health team is unclear, their training, support and supervision is inadequate, their knowledge in child health is poor and their professional standing reveals one of the most wicked inequity into the Brazilian health system: CHW's salary is the lowest among health workers, its mean 10-fold lesser than nurses and about 20-fold than doctors. Even basic right such as fringe benefits and job security guaranteed by federal constitution for all workers are not available for most of them. All these points were exhaustively mentioned on Chapter Seven.

Table 8.10 Positive and negative comments from health workers about community health workers. Sergipe, Brazil, 2000.

Positive comments from health workers about community health workers:	Heads (N=19)	Doctors (N=17)	Nurses (N=26)
• Importance:			
- Are a very efficient link between the health services and community	✓✓✓	✓✓✓	✓✓✓
- Are the best way to disseminate information in the community	✓✓✓	✓✓✓	✓✓✓
- Know the community very well	✓✓✓	✓✓✓	✓✓✓
- Are important for health services and community (mainly in rural areas)	✓✓✓	✓✓✓	✓✓✓
- Are effective in reducing infant mortality and hospitalization rates	✓✓✓	✓	✓✓
- Are increasing antenatal care visits	✓✓✓	✓✓	✓✓
- Are responsible for keeping immunization coverage rates high	✓✓✓	✓	✓✓
- Are improving in all areas of their work	✓✓✓	✓✓	✓✓✓
- Have potential to do more	✓✓✓	✓✓	✓✓✓
- Are capable of extending IMCI	✓✓✓	✓✓	✓✓✓
• Relationships with community:			
- Are strongly connected to the community	✓✓✓	✓✓	✓✓✓
- Are easily accessible and highly available	✓✓✓	✓✓✓	✓✓✓
Negative comments from health workers comments about community health workers:			
• Scope of work:			
- Do not know exactly what they should do	✓	✓✓	✓
- Have more tasks than they are able to deal with	✓✓✓	✓✓✓	✓✓✓
- Tasks needs to be redefined	✓✓	✓✓✓	✓✓✓
• Professional standing:			
- Receive very low salary and have excessive number of tasks	✓✓✓	✓✓✓	✓✓✓
- Are not health professionals	✓✓	✓✓✓	✓✓✓
- Need to be upgraded to a nurse auxiliary	✓✓	✓✓	✓
• Team work:			
- Are working alone in the community	✓✓	✓✓	✓✓✓
- Increase demand for health services	✓✓✓	✓✓✓	✓✓✓
- Determine who attends the health services	✓✓	✓✓	✓✓
- Are not adequately valued by the local health teams	✓✓	✓	✓✓
- Sometimes are discriminated against by the local health teams	✓	✓	✓✓
- Are sometimes rebellious	✓✓	✓✓	✓✓
• Knowledge/Effectiveness:			
- Have poor knowledge about health and disease	✓✓	✓	✓
- Are poorly trained, supported and supervised	✓✓✓	✓✓✓	✓✓✓
- Need to improve their communication skills	✓✓	✓✓	✓✓
- Have had their support and supervision improved by PSF	✓✓✓	✓✓✓	✓✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

Sometimes perception of health workers, especially heads, about impact of CHWs on health indicators, for instance, reducing mortality and hospitalization rates and improving antenatal care visits and immunization rates, seems to be exaggerated. There is no any evidence that isolated actions carried out by CHWs are improving these indicators.

8.7 Perceptions about integration of health services

Integration is defined here as a combination of three elements: the community mothers, CHWs and the health workers, as represented by heads of municipal department of health, doctors and nurses. Better integration could provide an improved health care for the population in terms of availability of health workers, access to an appropriate use of health services, quality of care provided and consequently better health indicators.

Excerpt 8.11 and Table 8.11 and results from Chapter Seven show that integration between CHWs and facility workers is poor or non-existent. The main barriers for integration are weak participation of facility workers in the community and non participation of mothers in health services activities, deficient communication skills, inappropriate use of health services by community, especially mothers, and inadequate preparation of CHWs to develop properly at household level tasks attributed to them.

As facilitating factors was identified implementation of PSF, good relationships between CHWs and mothers from rural and slums areas and opportunity to extend IMCI to the community through CHWs.

Facility workers do not take part in community's activities such as meeting for prevention and management of specific diseases, for instance, dengue or diabetes, vaccination against flu and pneumonia for old people, implementation of new health programmes, etc. Even mandatory tasks such as household visits by doctors and nurses in areas covered by PSF are not usually done by them. In Sergipe, only 10% of doctors and nurses carried out household visits in the last months (Chapter Six). On the other hand, community mothers do not take part in health facilities activities. To participate, they ask for goods such as medicine or food. This is result of scarce contact between facility workers and mothers outside of medical office, lack of ability of health workers to convince mothers to take part in these activities and constant conflict between health workers and members of community as demonstrated in previous sections. Finally, the misuse of health services by mothers is due to their low education level and conflicting relationship between them and facility workers.

The PSF programme had demonstrated that integration could be improved by doctors and nurses carrying out household visits and by providing support and supervision for CHWs. It was different in PACS where only nurses had to work with CHW.

CHWs were seen as the key element in this integration process and for this reason they should be more highly valued. However, doctors were less optimistic about the role of CHWs in improving integration because they did not have a university level training. Many

of those interviewed believed that CHWs if well trained could use IMCI to solve more child health problems at household level, which could then reduce demand on health centres, to improve their effectiveness and their acceptability among urban mothers.

☛ Excerpt 8.11:

"PSF is improving integration [between community, CHWs and health workers]*... now the team has a doctor and a nurse auxiliary and few CHWs, before only a nurse and dozens of CHWs... With extension of IMCI, training and supervision for CHWs should be improved... mothers will not believe them alone, nurses and mainly us* [doctors] *have to work closer with them and mothers."*

Condolesa (rural doctor)

"[To work integrated] *the community has to participate more in the health centres activities... they have to learn more about programmes...* [About health worker] *...I think we have to participate more in the community's life, especially the doctors - do not say this to doctors, please!- Usually they go to the community only for medical consultation... But we have a lot of tasks into the health centre."*

Amélia (urban nurse)

Table 8.11 Perceptions by health workers and community health workers about integration between local health services and community. Sergipe, Brazil, 2000.

Health workers and community health workers said:	Heads (N=19)	Doctors (N=17)	Nurses (N=26)	CHWs (N=28)
• Health workers and community health workers:				
- Need to improve their communication skills	✓✓	✓✓	✓✓	✓✓
- CHWs are essential in improving integration	✓✓✓	✓✓✓	✓✓✓	✓✓✓
• Community (mainly mothers):				
- Should help the local health teams in their work	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Increase participation in the local health team activities	✓✓	✓✓	✓✓✓	✓✓✓
- Learn how to improve the use of the health services	✓✓✓	✓✓✓	✓✓✓	✓✓
• Health system and programmes:				
- Integration is presently weak	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- PSF helps to improve integration	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- IMCI could facilitate better integration	✓✓✓	✓✓✓	✓✓✓	✓✓✓

Agreement by respondents: ✓✓✓ All/Almost all, ✓✓ Most, ✓ Some

In conclusion, integration is poor but there is an enormous potential for it to be improved. The PSF had demonstrated that improving support and supervision could lead to integration being better. In addition, IMCI has potential to accelerate these achievements because the strategy would probably improve the effectiveness of CHWs and thus help the health services gain more respect within the community and local health team.

8.8 Conclusions

In conclusion, relationships between the local health services, especially doctors and nurses, and the community is conflicting and consequently integration is often poor or even non-existent. Health centre workers do not participate actively in community life and clients of the health services do not take part in the local health services. Health centre workers give many reasons why they need to work only within the facility, where their role is familiar and they have power. The main advantages of CHWs are that they: 1) are highly available and makes access easier between health workers and community, 2) have good relationships which makes mothers, specially in rural areas, 3) are available for disseminating information within communities, and 4) have some capacity to solve problems presented by the community. A crucial point for CHWs relates to their professional standing. They are not recognized by the Brazilian government as a health professional and their salary is the lowest within health sector. Also, they have little job security and few fringe benefits. For these reasons many of them intend to move to another post because they see their CHW position as a transitory one.

Panel 8.1 Key findings about perceptions and beliefs.

- CHWs are easily accessible and highly available and are essential for disseminating information, to mobilize people and linking health services to the community mainly in poor and rural areas;
- Geographical access to health service is easy and, according to mothers, effectiveness of health workers are high (probably because in general they deal with common and self-limited diseases);
- CHWs have limited capacity to solve real problems by themselves, have poor knowledge about health and diseases, are overloaded in terms of tasks and responsibilities, are inadequately trained and supervised and are working alone in the community;
- Communities, especially mothers, do not really know what each category of health workers can provide, make excessive use and/or misuse of health services, usually do not take part in health services activities, are overly medicalized and not rarely prefer doctors and specialists;
- Availability of nurses and doctors mainly in rural areas is very low, quality of care in general is poor, medicines an laboratory exams are inadequate;
- Integration between community and local health team is poor, their relationships is usually conflicting.

Chapter Nine:

Extending Integrated Management of Childhood Illness to the community through community health workers

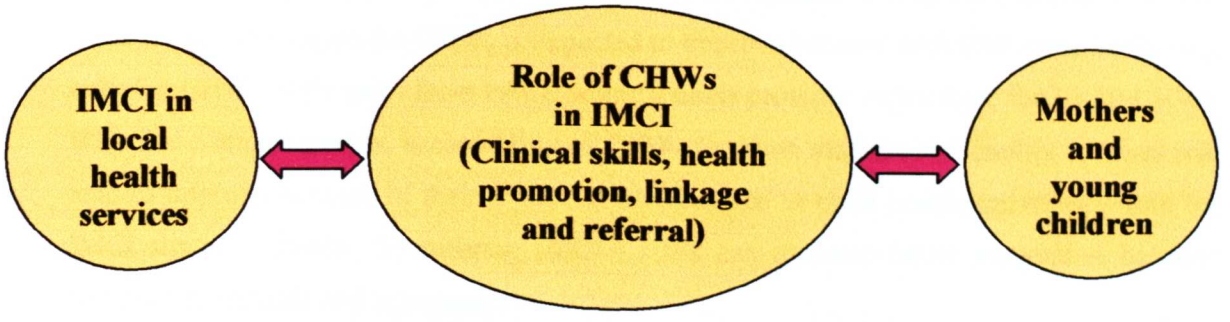
9.1 Introduction

This chapter aims to identify perceptions about barriers and possible facilitating factors for CHWs in extending IMCI to the community. It starts by showing a schematic representation of the role of CHWs, followed by a description of the potential barriers and facilitating factors to this extension.

9.2 Potential for extending Integrated Management Childhood Illness to the community through community health workers

Figure 9.1 shows a conceptual model of how IMCI activities may reach mothers and underfive children with CHWs as the key extension agents through their monthly visits to households. It is proposed that, to become effective extension agents, CHWs (a) should be part of local health services, (b) must provide some types of health care, especially mothers and young children, and (c) should also act as a link between families and local health services.

Figure 9.1 Schematic representation of CHWs for extending IMCI into the community.



9.2.1 Potential facilitating factors to extending Integrated Management Childhood Illness to the community

The interviews revealed several facilitating factors relative to health services, facility workers, community and especially for CHWs (Excerpt 9.1 and Table 9.1). All interviewed

facility workers, except for some doctors, were highly favourable to extending IMCI to households through CHWs. In the case of local health services and facility workers, offering IMCI at household level will increase availability of health care. This can be expected to improve cost-effectiveness of health care and avoid delays in the referral of ill children. As a result, doctors and nurses will have more time to deal with seriously ill patients, to implement and evaluate programmes, and to participate more actively in community activities. For mothers, the extension can provide an opportunity to work closer to facility workers, including better-trained CHWs, who are regularly supported and supervised. This has great potential to reduce conflicts between mothers and health workers, and to improve the participation of mothers in the health services activities.

☛ Excerpt 9.1:

"Offering IMCI at household level [through CHWs] *means the demand for medical consultation will be reduced."*

João Sereno (head)

"IMCI will improve effectiveness of CHWs... they will be more respected by the community and the health team.... To extend IMCI is a very good idea, mainly in rural areas..."

Catarina (nurse active in rural and urban areas)

However, the most important facilitating factors for the extension of IMCI to the community are related to CHWs (Excerpt 9.1 and Table 9.1). Offering IMCI at household level, CHWs will be streamlining their tasks in maternal and child health as well as defining their role into the health team. CHWs will need to be re-trained. With the expansion of PSF, supervision and support for CHWs is expected to improve because each PSF team works with only 4-6 CHWs, differently from PACS where a nurse provides supervision for 16-20 CHWs. With these improvements, acceptability of CHWs to urban mothers and facility workers will tend to improve because of their enhanced performance in child health activities within the IMCI strategy. Finally, by offering IMCI CHWs can promote better integration between health professionals and communities.

9.2.2 Potential barriers to extending Integrated Management of Childhood Illness

Excerpt 9.2 and Table 9.2 show potential barriers in extending IMCI to the community through CHWs. These barriers are related to local health system, facility workers, especially doctors and nurses, community mothers and CHWs and were grouped in four

categories: a) integration between facility workers, community mothers and CHWs, b) geographical access to health facilities, c) quality of care currently offered at facility level and d) careseeking by mothers.

Table 9.1 Opinion of facility workers and community health workers about extending IMCI to the community. Sergipe, 2000.

What facility workers and community health workers said about IMCI in terms of:	Heads (N=19)	Doctors (N=17)	Nurses (N=26)	CHWs (N=28)
• Health system:				
- Essential for CHWs mainly in rural areas	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Improve access and availability of health services	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Implementation of PSF would facilitate extending IMCI	✓✓✓	✓✓✓	✓✓✓	✓✓✓
• Community (mainly mothers):				
- Will learn more about child health	✓✓✓	✓✓	✓✓✓	✓✓✓
- Can participate more actively in health services activities	✓✓✓	✓✓	✓✓✓	✓✓✓
• Effectiveness:				
- Could help to reduce self-medication by mothers	✓✓	✓✓	✓✓✓	✓✓
- Help to reduce hospitalizations	✓✓✓	✓	✓✓	✓✓✓
• Role in CHWs into the local health team:				
- Act as a link between community and local services	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Create a new space for action of health services	✓✓✓	✓✓	✓✓✓	✓✓✓
• Extension of IMCI through CHWs:				
- Help better define CHWs role in the health team	✓✓✓	✓✓	✓✓	✓✓✓
- Help redefine CHWs tasks	✓	✓✓	✓✓	✓✓✓
• Characteristics of CHWs that facilitate extension:				
- Have low turnover	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- High availability and easy access for communications	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Live where they work and know people very well	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Are extremely good for disseminating information	✓✓✓	✓✓✓	✓✓✓	✓✓✓
• Relationships between CHWs and community:				
- More strongly connected to community	✓✓✓	✓✓	✓✓✓	✓✓✓
- Have better relationships with those in more needs	✓✓✓	✓✓	✓✓✓	✓✓✓

Agreement by respondents: All or most ✓✓✓, most ✓✓, or some ✓

The following constraints were mentioned in these areas:

a) integration: disconnection between first-level facility workers and referral services, doctors and nurses working individually and not as a team, curative care being restricted to doctors, conflicting relationships among facility workers and between these and the community, isolation of CHWs in the community, CHWs being restricted to acting as messengers between health facility and community, absence of participation of facility workers in the community; poor participation of mothers in the health services activities; and high turnover of facility workers;

b) access: insufficient availability of health services, especially in rural areas; large population being covered by each health team; doctors and nurses being frequently absent

from local facilities during working days;

c) quality of care: lack of medicines, doctors with inadequate motivation and training for working communities, CHWs being poorly trained, supplied and supervised, excessive number of tasks for CHWs, lack of a clear job description, absence of a well-defined role in the health team, poor knowledge on child health, low effectiveness and poor communication skills;

d) careseeking issues: mothers seeking health care unnecessarily, not knowing the role of each cadre of health worker, not being satisfied with counselling alone, looking for immediate solutions, acting "as if they owned the health facility" and not relying on CHWs, especially those from urban areas.

☛ Excerpt 9.2:

"Will be very difficult for the medical class to accept that a CHW will deal with disease... For them, diseases are for doctors and perhaps nurses."

Maria (head)

"The main problem is to find [financial] *resources to train them* [CHWs] *in IMCI... there is no money to train doctors or nurses, how will they find money to train thousands of CHWs?"*

Horacio (head)

"There is an inversion of values, one day the figure of the doctor will disappear... IMCI is giving a lot of power to nurses and now to CHWs... I think each monkey on its branch!"

Gastao (doctor)

"Usually CHWs do not deal with disease but with prevention and some days later [after training] *they appear saying that the child may have pneumonia... mothers will not believe them."*

Amélia (urban nurse)

"I'd like to offer the care [about IMCI] *but I have to learn more, much more."*

Franchico (rural CHW)

The other crucial point mentioned by facility workers, especially heads of municipal department of health, is related to lack of funds for training CHWs in IMCI. The original aim of the Brazilian Ministry of Health was to provide IMCI training to all doctors and nurses working in PSF in the state of Sergipe. After three years, training coverage was still low due to lack of funding. The main point raised by respondents was related to funding CHW training. They wondered how, given that there are no funds for training a few hundred

doctors and nurses, will the training of thousands of CHWs be financed.

According to those interviewed, without reducing or eliminating these barriers, CHWs will not able to offer the IMCI strategy properly.

Table 9.2 Barriers identified against extending IMCI according to health centre workers and community health workers. Sergipe, Brazil, 2000.

What health workers and community health workers said about IMCI in terms of:	Heads (N=19)	Doctors (N=17)	Nurses (N=26)	CHWs (N=28)
• About health system:				
- Facility workers are disconnected from health system	✓	✓✓✓	✓✓✓	na
- Availability of health services is insufficient	✓✓	✓✓✓	✓✓✓	✓✓✓
- Frequent changes of facility workers of the programmes	✓✓	✓✓✓	✓✓✓	✓✓✓
- Lack of medicines and other types of support	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Area and population to be covered are too large	✓✓	✓✓✓	✓✓✓	✓✓✓
• Doctors and nurses:				
- Do not live in the municipality	✓✓	✓✓✓	✓✓✓	✓✓✓
- Work less than five days a week and eight hours a day	✓	✓✓	✓✓	✓✓✓
- Usually do not work at household level	✓	✓✓	✓✓	✓✓✓
- Their profile is, in general, inappropriate	✓✓	✓	✓	na
- Work individually, mainly as doctors	✓✓	✓	✓✓✓	✓✓✓
- Doctors and nurses work inspecting CHWs	✓✓	✓	✓✓	✓✓✓
- Curative care is for doctors	✓	✓✓✓	✓	✓✓
- Conflicting relationships in the local health teams	✓	✓✓	✓✓✓	✓✓✓
- Are resistant to CHWs offering the strategy	✓✓	✓✓	✓	na
• About communities/mothers:				
- Usually do not participate in the local health meeting	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Seek health care unnecessarily	✓✓✓	✓✓✓	✓✓✓	✓✓
- Do not know role of each worker in team	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Do not like counselling	✓✓	✓	✓✓	✓✓✓
- Look for immediate solutions	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Do not rely on CHWs alone	✓✓✓	✓✓✓	✓✓✓	✓✓✓
• Community health workers:				
- Are poorly trained, supervised, and supported	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Have an excessive number of tasks	✓✓	✓✓✓	✓✓✓	✓✓✓
- Are only messengers for local health teams	✓	✓✓	✓✓	✓✓✓
- Have low salary, poor job security and few fringe benefits	✓✓✓	✓✓	✓✓	✓✓✓
- Increase number of patients to be attended	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Are working alone in the community	✓	✓	✓✓	✓✓
- Poor knowledge and low effectiveness	✓✓	✓✓✓	✓✓✓	✓✓✓
- Sometimes are discriminated against by local health teams	✓	✓	✓	✓✓✓

Agreement by respondents: All or most ✓✓✓, most ✓✓, or some ✓

9.3 Recommendations on extension of IMCI to the community by facility workers and community health workers

Several recommendations can be proposed as a consequence of the points highlighted by those interviewed, relative to the possible extension of IMCI to the household level

(excerpt 9.3 and Table 9.2). Their comments fall into four main areas:

a. Integration. It is necessary to invest in the integration among facility-based workers, CHWs and the community. The participation of all health workers (particularly doctors) in community life, as well as the participation of mothers in health services activities should be reinforced. Facility workers, especially doctors, should work closer to CHWs.

b. Access. There should be investments in improving the geographical availability of services in rural areas. For existing services, it is important to ensure that health workers are available during all times of the day, and not only for a few hours a week. The number of families to be covered by each health team should be reduced.

c. Quality of care: There is a need to improve the management of common diseases by facility workers, to reduce staff turnover of facility workers, to improve drugs and supplies, to invest on training of doctors, nurses in case-management and how to work properly with community. Regarding to CHWs, their training, support and supervision should be substantially improved, their role into the health team and their tasks during household visits clearly defined;

d. Careseeking issues: investments should be made to improve careseeking practices by mother in order to rationalize their demand for health services and to improve their initial management of sick children at household level.

☛ **Excerpt 9.3:**

"Local health teams have to participate more in community life ... they [health workers] *have to demonstrate that they are working together with CHWs."*

Maria Aparecida (head)

"Training, support and supervision [for CHWs] *should be improved... The local health team should assume the CHW is a professional and not only a 'linking' or* [just] *an appendix of the health centre within the community... ."*

Condolesa (rural doctor)

"Mothers have to be learn that other professionals, not only doctors, can deal with disease... in case of extension of IMCI to the community through CHWs, it's essential... Also, media should be used to explain to the population the new tasks for CHWs."

Catarina (rural and urban nurse)

"To define our situation [job contract, security, fringe benefits], *improve our salary .... to reduce the number of tasks and number of families to be visited... Training should be in the community where we work and not only within the health centre where we don't work!"*

Susana (urban CHW)

Table 9.3 Recommendations on extension of IMCI to the community by health centre workers and community health workers. Sergipe, Brazil, 2000.

What health workers and community health workers said in terms of:	Heads (N=19)	Doctors (N=17)	Nurses (N=26)	CHWs (N=28)
- Redefine (and to reduce) the number of CHWs tasks	✓✓✓	✓✓✓	✓✓✓	✓✓✓
- Urban area, more education; rural area, more intervention	✓✓✓	✓✓✓	✓✓✓	✓✓
- CHW limits should be clearly defined and monitored	✓✓	✓✓✓	✓✓✓	✓✓
- Mothers should be trained to receive the initiative	✓✓	✓✓	✓✓✓	✓✓✓
- Local media should be used to explain new tasks	✓✓	✓✓✓	✓	✓✓✓
- Need to give a role for CHWs during visits with the team	✓	✓	✓	✓✓✓

Agreement by respondents: All or most ✓✓✓, most ✓✓, or some ✓

9.4 Conclusions

Extending IMCI to the community through CHWs seems to be appropriate, feasible and timely. For CHWs, this is an opportunity to redefine their tasks and their role into the health team. For health workers, particularly doctors, this represents a chance to improve their integration with CHWs and mothers. The constraints identified above are a consequence of persistent problems that affect the Brazilian health system. However, to extend effectively IMCI to the community through CHWs, substantial changes would have to occur in their selection, training, supervision and on how they approach to families and households during their visits. Also, CHWs from urban areas should concentrate their tasks on linkage, referral

and health promotion, while in rural areas they must improve their clinical skills because, not infrequently, they constitute the only source of health work available during most of the time.

Panel 9.1 Key findings about extending IMCI to the community through CHWs.

- Mothers are the key persons to invest in terms of health education at the community level;
- All respondents agreed that extending IMCI to the community is appropriate and desirable;
- In rural areas, CHWs should deliver child survival interventions by improved clinical skills, while in urban areas they should concentrate on health promotion, referral and linkage with health facilities.

Chapter Ten:

Discussion of research methods and main findings

This chapter starts by discussing the most important strengths and limitations of the research methodologies used in the study described in this thesis and then the main findings in the light of current knowledge. Finally, the policy implications of the results are considered.

10.1 Strengths and limitations of the research methodologies

Some limitations must be borne in mind when interpreting these results. As mentioned in Chapter Five, the cross-sectional quantitative survey design may not clearly allow for the differentiation of cause from effect, essential for determining disease aetiology. However, the study presented here aimed to evaluate the magnitude of both the process and impact indicators, such as the percentage of CHWs who had essential equipment for undertaking their tasks or prevalence of children who were sick in the previous 14 days. This study did not aim to identify risk factors for the occurrence of diseases or poverty and, therefore, these results are less affected by this limitation.

Special attention was devoted to assuring the internal validity of the findings. Sample sizes had high power and precision and non-response rates were no more than 4%. Also, the surveys used representative samples of children under five years old and CHWs in the state of Sergipe in mid-2000. Sampling was done using probability proportional to size to guarantee that more populous municipalities were more likely to be chosen in the study and to ensure that the final sample included municipalities from all the regions of the State. In the case of the effectiveness of CHWs (Chapter Seven), attempts were made to control for potential confounding factors. Comparison was restricted to children living within each census tract, fixed effects conditional logistic regression was used, and all variables associated with both the outcomes and the independent variable (with $P \leq 0.10$) were considered as confounding factors, and adjusted for during the analysis (Rothman and Greenland 1998). Other reasons for this type of quantitative design and the survey procedures used to assure quality control have been described in sections 5.4, 5.5 and 5.9.

The advantages and limitations of the qualitative methods used were also mentioned in sections 5.6, 5.10 and 5.11 and are again described here in some detail. Pilot studies were

performed to define topics and domains, to test questions, to develop interviewer skills, to identify local terms and expressions, and to plan the logistics for the study. An important concern that affects qualitative studies is their weaker degree of rigour (Rice and Ezzy 2001), which can show as a lack of validity and/or reliability. To improve scientific rigour, the following procedures were used: questions and texts were carefully pre-tested during pilot studies and then revised, as were main topics, domains and categories. In addition, data were defined prior to use and information was collected using short notes, observations and by recordings and transcriptions of interviews. During each stage of fieldwork, a provisional running analysis was carried out. However, some of the uncertainties associated with these types of studies remain. For instance, it is not possible to know totally accurately if subjects actually did or will do what they say or reported. However while there was a possible limitation in that doctors, nurses and heads of municipal departments of health were often busy and they were only seen once for a short period of time. In the case of CHWs, many of them had two interviews. Also, some home visits were performed with CHWs and in areas where they were active. Finally the interviews with CHWs were carried out in a quiet place, usually under a tree near their houses. The aim of this approach was to reduce the influence of the researcher on the setting. Finally, interpreters were not used for interviews, a common problem that affects many qualitative studies, as all interviewers and researchers spoke Portuguese. Essential extracts were translated into English under supervision of native speakers.

Triangulation was used to enhance the rigour of the findings obtained from the quantitative and qualitative parts of the study. This was done by analysing the similarities and differences between the data obtained by the survey, the FGDs, and the in-depth and expert interviews. Also, the same data was interpreted by at least two separate and experienced researchers. Gaps and ambiguities in the data were fed back to participants wherever possible to ensure that the data was as accurate as possible.

In conclusion, there is little evidence that methodological limitations in the quantitative part of the study such as poor validity, lack of representativeness, selection bias or insufficient control for confounders during analysis were important factors in the surveys presented here. In the qualitative part of the study different ways were used to enhance rigour by recruiting a range of mothers and CHWS for the FGDs and a heterogeneous sample of heads of municipal departments of health, doctors and nurses. Interviewers spoke fluent Portuguese and understood the social and cultural context of the local communities and

health services that were studied. The questions, domains and categories were developed from pilot FGDs and facilitators and interviewers asked open and non-leading questions to reduce interviewer and facilitator bias. Finally, for both the quantitative and qualitative data triangulation of the data was undertaken by exploring the similarities and differences and gaps and ambiguities in the data were reported back to participants wherever possible to ensure its accuracy and consistency. As with all research projects uncertainty remains but given the above efforts, to reduce bias and confounding and enhance rigour, the findings of this study do provide strong evidence for the influence and impact of CHWs on the health of children under five years of age in Sergipe State; the lack of effectiveness of health facilities in treating children under five and the overall poor relationships between mothers, CHWs and health facility teams.

10.2 Child health and public health services in Sergipe

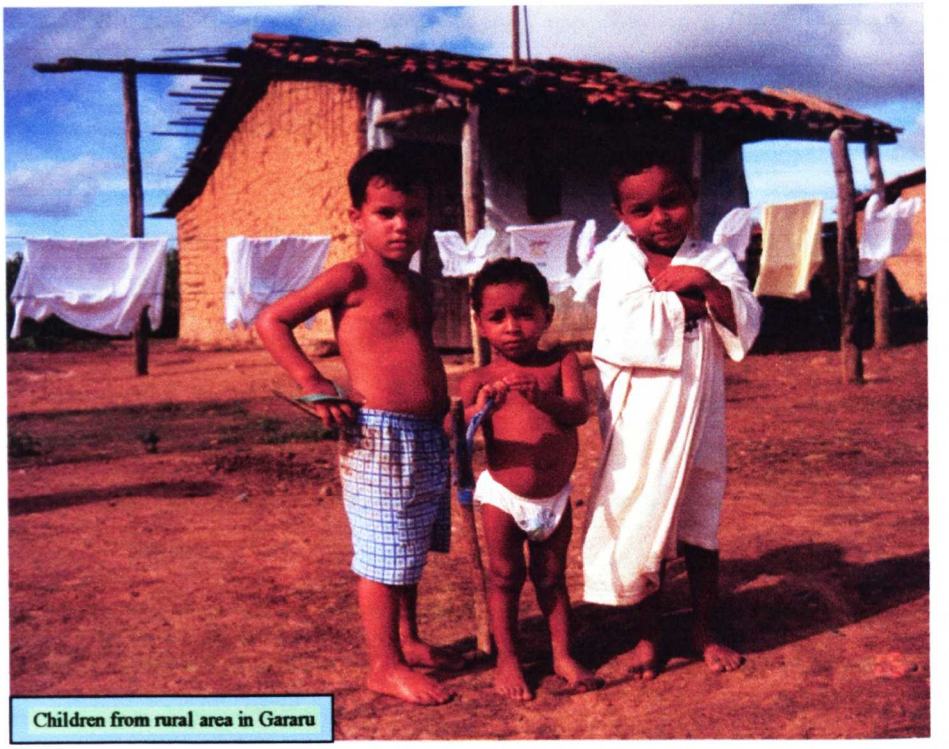
This section is largely based on the findings of the survey of under-five children in Sergipe. Their current burden of disease and its underlying determinants will be reviewed using the current literature and the findings from the survey. I will then discuss how IMCI and CHWs may help address this burden of disease, relating this to the findings in this study and the international literature. Finally specific areas needing further attention are identified and discussed.

Many children under five years old in Sergipe were living below the poverty line and under unfavourable environmental conditions. For these reasons, 40% of them were sick in the previous two weeks and 12% had been hospitalized in the last 12 months. About 70% of all these hospital admissions and half of all medical consultations in the previous three months were due to ALRI and diarrhoea. The main causes of registered infant deaths in this region of Brazil are perinatal diseases (54%) followed by diarrhoea (15%) and acute lower respiratory infections (10%) (Victora 2003). Poverty and inadequate provision of health care seem to be the main factors responsible for this situation.

The burden of diseases among Sergipian children was high, and 85% reported illnesses, in the previous two weeks, which are included in the IMCI strategy. This pattern of diseases was also identified in other settings where IMCI has been implemented (Schellenberg et al 2004; Arifeen et al 2004), including Brazil (Amaral et al 2004). In these settings, IMCI was shown to improve the quality of care in first-level health facilities in terms of assessment of the child, disease classification, treatment, and caretaker communication

(Amaral et al 2004; Schellenberg et al 2004; Arifeen et al 2004; Gouws et al 2004). In Tanzania, IMCI did not cost more than traditional child health care (Adam et al 2005), and similar results were observed in Brazil (Adam T., personal communication). In Bangladesh, IMCI helped increase the utilization of health facilities and the correct treatment of sick children (Arifeen et al 2004), while in Tanzania it seems to have contributed to improved nutritional status and reduced mortality (Schellenberg et al 2004) and in northern Ethiopia it is drastically reducing the infant mortality rate (Ali et al 2005).

According to our survey results, there are some areas that require special attention in Sergipe state, for which IMCI could be very beneficial. These areas include care-seeking by mothers, provision of essential medicines, prescription of antibiotics for children who need them, coverage of vitamin A supplementation, total and exclusive breastfeeding, and introduction of complementary foods. These interventions are included in the IMCI strategy and are promoted by CHWs in Sergipe, either directly or through referral to health facilities. These findings will be discussed below in considering the potential contribution of IMCI and CHWs. The latter also help deliver other maternal and child interventions that are not part of IMCI, such as antenatal care and growth monitoring.



Children from rural area in Gararu

In Sergipe, sick children were first managed at home by their mothers. Treating illnesses at home is a common practice in developing countries because many episodes are

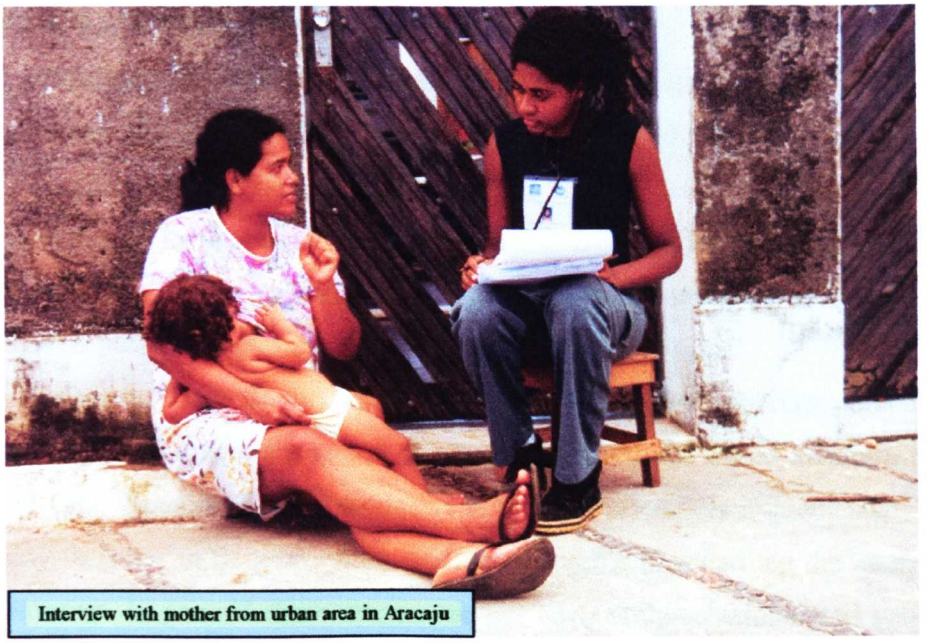
self-limiting, health facilities are often not easy to access, transportation problems are common and resources to buy medicines are usually lacking (Peterson et al 2004; Taffa et al 2005). However, caregivers may fail to recognize severe illnesses that require urgent attendance by a health professional (DeClerque et al 1992; Hill et al 2003; Chopra et al 2005). The high number of deaths, in several countries, among children who failed to receive any health care during the fatal disease episode, highlights this problem (Oluwole et al 2000; Ali et al 2005). A study carried out in Northeast Brazil in the past decade showed that 29% of children under five years old had not visited a health facility during the fatal episode; for 70% of them care seeking was delayed, 43% had received ineffective medical interventions and 13% suffered delays in receiving medical care (Terra de Souza et al 2000).

Management of sick children at home could be improved through the community component of IMCI. This component aims to provide adequate care at the household level through mothers and/or health workers, especially CHWs, who are in general easily accessible and highly available in the community. However, home visits by doctors or nurses – which are an essential component of the Family Health Programme and should account for about half the working hours of doctors and nurses (MS/PSF 2001) - were infrequent in Sergipe. Also, although most families were visited monthly by a CHW, these were neither trained in IMCI nor in curative care. Therefore, considering their current role in the health team, CHWs are not as useful as they could be in this situation.

Results from the survey of children under five years showed that antenatal care had high coverage in Sergipe but that its quality was poor. 12% of all mothers had never visited an antenatal clinic during pregnancy, one third of them had had less than six visits and only half were immunized against neonatal tetanus. Estimates suggest that a reduction of 8% in infant mortality could be achieved if all Brazilian mothers received at least six medical check-ups during their antenatal period. This represents a reduction of five infant deaths per thousand per year in this area (Victora and Cesar 2003). CHWs are able to improve antenatal care if adequately trained (Cufino Svitone et al 2000; Emond et al 2002). The challenge in Sergipe is to improve their knowledge in antenatal care, their ability to convince mothers to attend at least six times during pregnancy and to receive tetanus toxoid. Adequate supervision from facility workers is essential for these tasks to be successful.

The median duration of total and exclusive breastfeeding was short and the introduction of complementary foods (solid or semi-solid) was often inappropriate. Breast milk provides all the nutrients needed for most infants up to six months of age and is

associated with reduced child mortality, morbidity and improved development (Hill et al 2003). The introduction of complementary foods (solid or semi-solid) among Sergipian children was inadequate because these were introduced too early, and their quantity and quality tended to be inappropriate. Such children are more likely to die from pneumonia and diarrhoea and to suffer in the future from malnutrition and retardation of cognitive development (Jones et al 2003; Black et al 1995).



Interview with mother from urban area in Aracaju

Nutritional counselling is one of the most important topics addressed by the IMCI strategy. It includes advice on the frequency of breast and complementary feeding, the quality of complementary foods and the assessment and management of breastfeeding problems as well as providing individual counselling to mothers about feeding problems (WHO 1995). The proper use of communication skills by health workers is key to teaching mothers and it has achieved successful outcomes in similar context (Pelto et al 2004). Also, some studies in different settings have demonstrated that CHWs are able to improve breastfeeding patterns if well trained and supervised (Davies-Adetugbo 1997; Cufino Svitone et al 2000).

Improving the pattern of breastfeeding and the introduction of complementary foods is essential for Sergipian children. Educational materials developed by IMCI are adequate for dealing with this problem, and are working well in other similar Brazilian populations (Pelto et al 2004). Health workers and CHWs have to be trained to provide adequate counselling for mothers. These messages must be delivered consultations within health facilities by doctors and nurses, as well as during household visits by CHWs.

Coverage of childhood vaccinations is usually high in Brazil, partly as a result of the national immunization days first implemented in 1980s. Coverage of growth monitoring and vitamin A supplementation, on the other hand, are low. Although vitamin A improves immune-system functioning, prevents night blindness and xerophthalmia, and also reduces the severity of diarrhoea, measles and malaria (Beaton et al 1993; Barreto et al 1994; Jones et al 2003), a high proportion of children under five years old in Sergipe had not received this vitamin in the last six months.

Children under five years old in Sergipe were managed almost exclusively by doctors. Although nurses were available, in general, they were not allowed to manage sick children. Even in municipalities with IMCI in place, this type of professional discrimination remains. Discrimination is led by doctors, but mothers who refuse to be attended by nurses also play a part. This limitation can seriously affect the whole implementation of the strategy and tends to reduce its positive impact on child health.

Follow-up visits for sick children are one of the most important components of IMCI (Tulloch 1999). Mothers are taught about danger signs and asked to return immediately if these become apparent. Even in settings where IMCI is soundly implemented – as is the case for many facilities in Sergipe - there are serious problems regarding the return of caretakers for follow-up. In general these returns are not adequately scheduled and valued by facility workers and caretakers (Al Fadil et al 2003).

CHWs can improve this by visiting children who failed to return when scheduled. For this, facility workers have to work more closely with CHWs, letting the later know when return visits are due. Clearly in this situation, CHWs can contribute to improving IMCI effectiveness.

Other problems identified in the study were the reported lack of medicines in health facilities and the over-prescription of antibiotics, half of which had to be purchased from the private sector. These constraints almost certainly led to incomplete and failed treatments (Radyowijati and Haak 2003; Lieberman 2003).

There are some studies in different settings demonstrating that IMCI is improving the prescribing of medicines, including antibiotics (Amaral et al 2004; Arifeen et al 2004; Gouws et al 2004). Such rational use of antimicrobials can contribute to solving some of the problems identified for under fives in Sergipe. IMCI works with a reduced number of drugs whose costs seem to be acceptable for most developing countries including Brazil. Rational prescribing of antibiotics can keep families from wasting and improve the effectiveness of the

intervention.

Finally, three findings regarding children under five years in Sergipe seem to be unusual in developing country situations: 1) all children referred to the public health services received free medical care, 2) vaccine coverage was very high and 3) a large proportion of children were visited monthly by a CHW. Primary health care in Brazil has been tremendously expanded since the creation of the Unified Health System and the implementation of PSF. This programme reaches families in isolated communities and, for the first time ever, makes it possible for them to have free access to health facilities. Even in the poorest areas in the Northeast, geographical access to health services has improved, and the main problem now faced by families is the poor quality of health care received (Cesar and Gonçalves 2002). High vaccine coverage is a result of the free availability of vaccine and the twice-a-year national immunization days created by the federal government and widely adopted by the population. Finally, eight in ten children under five years old are being visited monthly by CHWs in Sergipe. As demonstrated in Chapter Six, section 6.9, CHWs are reaching those at greatest need. This is an exceptional situation that enables health services to reach the poorest, if appropriately used, can contribute to improving equity in child health, as will be shown in the next section. A greater impact of CHWs on child health indicators, however, is being hampered by their poor training, supervision and support; their isolation in the community; and inadequate definition of their tasks. These points will also be addressed in the next section.

Poverty, mismanagement of sick children and inadequate care seeking for health services are the main causes of the high burden of disease among children under five in Sergipe state. As mentioned, ARI and diarrhoea are the main reasons why children use health services. These diseases are at the core of the IMCI strategy and CHWs have demonstrated effectiveness in their control (Sazawal and Black 2003; Cufino Svitone et al 2000). Therefore, the IMCI strategy has great potential in this setting but the barriers described above and in other settings (WHO/MCE 1992) must be addressed. CHWs can make a major contribution to overcoming these barriers.

10.3 Community health workers in Sergipe

In this section, we interpret the main findings of the survey of CHWs in Sergipe in the light of the existing literature. CHWs in Sergipe are facing many of the problems described in similar programmes elsewhere. These include inadequate training, support and supervision,

the absence of a clear definition of their role in the health team, an excessive number of tasks, isolation in the community, poor professional standing and inability to offer curative care. All these factors detract from the potential impact of CHWs.

On the other hand, CHWs from Sergipe are easily accessible, highly available and relate well to mothers from rural areas. They had positive effects on several indicators of maternal knowledge (see section 7.11). Finally, they are reaching a high proportion of children under five years old living in the State, especially the poorest. These results will be discussed in the light of CHWs role in maternal and child health and their potential in extending IMCI to the community.

As mentioned above, Sergipe CHWs already offer several interventions that are part of the IMCI strategy. However, to improve their performance in extending IMCI to household level, some constraints have to be addressed: 1) training support and supervision, 2) professional standing, 3) effectiveness and 4) definition of their role and tasks in the health team. These limitations are common reasons why many CHW programmes in other sites were discontinued (Scholl 1985; Berman et al 1987; Heggenhougen et al 1987; Frankel 1992; Kahssay et al 1998).

Current training, supervision and support of CHWs in Sergipe are inadequate. Data from the survey and qualitative interviews demonstrated that the training provided by State Department of Health and the supervision provided by doctors and nurses are concentrated on filling forms for the federal government, largely because funds to pay the salaries of the PSF team is based on these forms. With regard to support for CHWs, essential materials such as scales, ORT packs or the measuring spoons for salt and sugar solution, among other things, are often lacking. These are serious constraints to

Community health worker from rural area in Itabaiana

extending IMCI into the community.

In Sergipe, and in Brazil as a whole, lack of job security also affects not only CHWs but also other cadres of health workers. PSF hires doctors, nurses and CHWs for 2-6 months at a time, in order to reduce overheads. Although these short-term contracts are often renewed, there is a general feeling of insecurity. Problems with professional standing are one of the most important constraints to the success of PSF. This results in high staff turnover, a common problem in Brazil (Amaral et al 2004) and in Peru (Huicho et al 2004). For this reason, being a CHW is seen as a temporary job. In general, CHWs particularly those from urban areas move to another job when a new opportunity arises. To solve these problems, the federal government should provide CHWs with job security and fringe benefits.

10.4 Effectiveness of CHWs in Sergipe

One of the biggest challenges facing CHW programmes in large health programmes is how to demonstrate their effectiveness. In many countries, this lack of evidence on effectiveness was one of the main reasons why they became discredited (Berman et al 1987; Walt 1990; Desai 1992). Communities value curative skills and prompt solutions, while CHWs usually promote prevention and education (Lewis et al 2004). This contributes to the lack of respect for CHWs by parts of the population, especially in urban areas.

In spite of these constraints, this study suggests that in Sergipe, CHW visits were positively associated with several outcomes, after controlling for confounding factors. These included 1) mothers' knowledge about the correct preparation of ORT, 2) vitamin A supplementation in the last six months, 3) growth monitoring in the past four weeks, 4) counselling mothers to discuss breastfeeding and type of delivery during antenatal visits to doctors or nurses, and 5) obtaining ultrasound examinations during pregnancy. These findings have to be interpreted with some caution because this was not a randomised study, and therefore municipalities with higher CHW coverage, and families which are visited, may differ from the rest of the population. Therefore, some degree of selection bias may be present.

In spite of substantial improvements in the management of diarrhoeal disease in the Northeast, its occurrence remains high (Cufino Svitone et al 2000). Many children with diarrhoea are identified by CHWs during their regular home visits, in which they provide ORT packs and teach mothers how to prepare it. This finding is in agreement with other studies (Menon 1991; Cufino Svitone et al 2000). However, their effectiveness could be

improved. In this study, 16% of the CHWs sampled did not have ORT packs and 40% did not have plastic measuring spoons for preparing salt and sugar solutions. Most, also, did not know how to differentiate diarrhoea and dysentery which is essential for the appropriate management of sick children as mentioned in the IMCI guidelines.

In some municipalities, the local health teams encourage CHWs to distribute vitamin A. Nevertheless, giving vitamins is assumed by some doctors and nurses to be a 'medical procedure' that cannot be delivered by CHWs. Again, better coverage of vitamin A supplementation could be achieved if all PSF teams made it legitimate for CHWs to distribute this vitamin.

One of the most common tasks performed by CHWs in Sergipe was weighing children. Growth monitoring was the only intervention within GOBI (growth monitoring, oral rehydration, breastfeeding and immunization) (UNICEF 1983) that did not appear to result in reducing infant morbidity and mortality. For this reason, a moratorium on the use of growth monitoring was recently proposed by Save the Children (Save the Children 2003). In Sergipe, growth monitoring by CHWs is carried out in isolation from other health interventions, and thus seems to have little impact on child health. Even in municipalities where integration between CHWs and local health teams is working well, there is no effective programme to rehabilitate undernourished children. Weighing children in Sergipe is more of a strategy for promoting home visits than an intervention per se. IMCI has the potential to improve child nutrition because it has specific modules on how to manage malnourished children at household and facility level. It would also be useful for CHWs to provide adequate counselling for mothers about infant nutrition, early diagnosis of malnutrition and correct referral if necessary.

Breastfeeding and antenatal visits can be positively promoted by CHWs. For instance, it has been demonstrated that CHWs can provide appropriate counselling about breastfeeding practice and also have an impact on its duration (Davies-Adetugbo 1997; Cufino Svitone et al 2000). Such activities are particularly relevant in Sergipe, where in 1994 the total and exclusive median duration of breastfeeding were only 4.0 and 1.4 months, and in this study were 5.4 and 2.1 (UNICEF 1995). Thus, there is substantial room for improving breastfeeding practices.

Breastfeeding and the introduction of complementary foods for young children are two of the most important aspects addressed in IMCI. The strategy has specific modules about the training of health workers, including CHWs, and how to provide adequate

nutritional counselling for mothers (WHO 1995). Despite the many difficulties mentioned previously, CHWs, in this study, demonstrated some impact on maternal knowledge about this topic. With the implementation of IMCI, the potential of CHWs to improve breastfeeding patterns and the timely introduction of food supplementation will increase substantially. This will reinforce their role in maternal and child health.

CHWs were effective in encouraging mothers to ask doctors and nurses, during antenatal care, to discuss possible types of delivery. In Brazil, caesarean sections are perceived to represent better quality care and therefore a goal for many poor women (Barros et al 1991; Behague et al 2002). The fact that CHWs are effective in promoting discussion of type of delivery during antenatal care is a positive finding, but whether or not this will lead to fewer caesarean sections remains to be seen.

CHWs are also effective in obtaining more ultrasound tests for pregnant women. The qualitative study showed that mothers like such technologically sophisticated tests because these represent "health care similar to that received by rich mothers". Urine examinations, for instance, are regarded as low-technology testes, while ultrasound tests are performed in private clinics or large hospitals. Each municipality allocates a limited monthly quota of tests per health facility. As CHWs visit the health facility almost daily they know when tests are available and they pass on this information to pregnant women.

However, performing ultrasound tests as this is done in Brazil, usually late in pregnancy with the objective of determining the sex of the baby, is wasteful of scarce public health funds. Therefore, the finding that CHWs promote ultrasound examinations is unlikely to lead to improved maternal or child health.

Two recently published studies on local CHW programmes in Northeast Brazil suggested important improvements in child health indicators. In Ceará state, a CHW programme was implemented in 1993. Infant mortality was reduced from 77 per thousand in 1994 to 40 per thousand in 1997, with deaths due to diarrhoea dropping by 50%. Also in this period, the number of pregnant women completing all planned antenatal visits increased from 63% to 76%, children exclusively breastfeed for 1-4 months increased from 34% to 47% and growth monitoring for children aged 0-23 months increased from 32% to 90%. However, vaccine coverage remained at 74% for children aged 0-11 months (Cufino Svitone et al 2000). In a poor urban area of the city of Natal, implementation of a CHWs programme was associated with an increase from 50% to 75% in the proportion of children breastfed until six months of age, from July 1995 to December 1997. In this period, the percentage of sick

children for whom health care was sought increased from 54% to 84% and immunization coverage for measles and BCG vaccines increased from 52% to 72% and from 76% to 93%, respectively (Emond et al 2002). However, these studies did not have control groups and also failed to control for potential confounding factors in the analysis (Cufino Svitone et al 2000; Emond et al 2002).

There is evidence that CHWs can be effective in many specific situations, usually in small-scale programmes. For instance, in reducing the incidence of kalazar (Thakur et al 1994), controlling and treating malaria (Delacollette et al 1996; Kidane and Morrow 2000), improving immunization rates (Chopra and Wilkinson 1997), diagnosing, treating and managing acute respiratory diseases (Sazawal and Black 2003) and diarrhoea (Cufino Svitone et al 2000), monitoring growth (Valadez et al 1996), reducing hospitalization and increasing the use of ORT (Cesar et al 2002), controlling tuberculosis (Chowdhury et al 1997), increasing the utilization of health services by women with obstetric complications (Opoku et al 1997), obtaining accurate numerical data at the grass roots level (Lawoyin 2001), identifying, treating and reducing the costs of tuberculosis control (Chowdhury et al 1997; Islam et al 2002). In many of these diseases, which are a target for IMCI, CHWs can improve their performance if they are adequately trained, supported and supervised.

However, demonstrating the effectiveness of CHW interventions in large programmes remains a challenge, despite great improvements in study design, statistical analysis and the combined use of qualitative and quantitative methods. The evidence remains weak that national CHW programmes are effective. The main problems appear to be: 1) it is to hard to separate interventions delivered by CHWs by those delivered by other health workers; 2) their main tasks concern health promotion and education, which may be difficult to achieve and require a long lead time for changes to be detected; and 3) because CHWs are commonly overloaded, they may not be able to deliver any given intervention in an optimal way (Berman et al 1987; Walt 1990; Frankel 1992; Kahssay et al 1999).

The later point, namely that CHWs are overloaded, has been described in many programmes (Berman et 1987; Heggenhougen et al 1987; Walt 1990; Desai 1992; Kahssay et al 1998). In Brazil, CHWs have about 26 tasks to perform with families. Also, they have to carry out many tasks within the health facility. This number of tasks is increasing because the federal government has decided that CHWs should recruit potential beneficiaries for community social programmes. In May 2005, there were three of these programmes operating at national level with different populations, age groups and socioeconomic

conditions. Some other Brazilian states also have similar programmes and CHWs are responsible for recruitment to them as well.

However, the main tasks performed by CHWs not only in Sergipe but also in Brazil as a whole are to serve as messengers between families and health facility workers. With the implementation of IMCI, there is an enormous potential to define their role and tasks, especially in maternal and child health, and to improve their effectiveness. This can avoid the interruption or dismantling of CHW programmes as has happened in many others countries such as Botswana, Colombia and Sri Lanka (Walt 1990), Indonesia (Berman et al 1987), Bolivia (Coyle et al 1992) and India (Desai et al 1992).

In Brazil CHWs do not have any clinical skills other than prescribing ORT. This is in contrast with most above-mentioned programmes in which CHWs were trained to intervene on diseases. Brazilian CHWs work on health prevention, promotion and education. Other activities of CHWs include referring children with vomiting or continued diarrhoea to local health services and, in some municipalities, providing vitamin A for children aged 6 to 59 months. Curative care remains the preserve of nurses and doctors. Some recommendations to deal with these problems are given in Chapter Eleven.

At national level, 96% of municipalities had CHWs and 72.4 million Brazilians are being covered (MS/DAB 2005). The challenge for policy makers, health workers and researchers at national, state and municipal level is to transform this huge coverage into actions that effectively leads to improvements in health indicators, particularly among children who are still dying from easily preventable and manageable causes.

10.5 Perceptions about health care, facility workers and use of health services

This section is based on the qualitative study, and addresses perceptions of community mothers, CHWs and facility workers. Special attention was given to their opinions on careseeking and utilization of health services, and to how each cadre related to the others. These perceptions and beliefs are summarised in Panel 10.1 below.

Although all children referred to government health services eventually received medical assistance, mothers reported that they often had to resort to special strategies such as threatening health workers or lying about their child's symptoms. Medical care is regarded as a basic need. Mothers, particularly those from rural areas, regarded doctors as being highly effective (Panel 10.1). The apparent discrepancy between maternal perceptions of poor quality in available care and medical effectiveness may be explained because most illness

episodes are self-limiting and easy to manage. Once mothers succeed in getting care, the use of simple measures by doctors result in a high level of apparent effectiveness. Providing CHWs with some curative skills may contribute to increasing their status with mothers.

Both mothers and health facility workers had similar opinions about CHWs (Panel 10.1), which confirms the idea that the main role of CHWs is to serve as a messenger between mothers and health facilities. In the 1990s, this role was paraphrased as 'just another pair of hands' (Walt 1990), while CHWs mentioned that they work like a postman: delivering things that do not belong to them. They also act as an extension of the community towards the health service and they accept this role because they have limited clinical skills and suffer discrimination from doctors and nurses.

Panel 10.1 The perceptions of mothers, CHWs and facility health workers about each other.

	Mothers	CHWs	Facility health workers
What do mothers think about...		• are easily accessible; • have high availability; • have good relationship with families; • are more useful among poorest; • have low effectiveness; • do not solve 'real' problems.	• have easy geographical access (in urban areas); • have high effectiveness; • have low availability of nurses and particularly of doctors, do not live in the municipality and work only for days a week; • offer poor quality care; • provision of medicine and lab exams are inadequate. • do not touch patient, particularly poor and non-white; • doctors have other jobs;
What do CHWs think about...	• do not know well what each cadre of health worker can provide; • are overly medicalised; • prefer doctors and specialists; • generate endless demand; • there are more people that they could attending;		• may be discriminated against by health facility workers; • have tense relationship with doctors and nurses; • are not their partners but their auditor; • are sometimes not considered as part of the health team; • are not adequately valued especially by doctors.
What do facility health workers think about...	• no positive points. • misuse health services; • do not participate in meetings and act as owners of health services; • do not know well what each cadre of health worker can provide; • are overly medicalized; • prefer doctors and specialists; • generate endless demand; • there are more people that they could be attending.	• are good at disseminating information; • are able to link the community and health service; • are easily accessible; • have high availability; • will be able to extend IMCI to the community. • are rebellious & demanding; • have low effectiveness; • have poor knowledge about health and disease; • are working alone; • are overloaded.	

A major strength of CHWs is that they are able to disseminate information, can mobilize people and are the most accessible health worker for the poorest families (Panel 10.1). CHWs are aware of their weaknesses and virtues. Their performance is affected by their poor defined role within the health system, their low professional standing and their temporary employment status. These same problems have affected many other national programmes and have frequently led to such programmes being terminated (Berman et al 1987; Walt 1990; Kahssay et al 1998).

Expansion of PSF into rural areas could improve the relationships between mothers and health workers. This Sergipe programme is spreading state wide and the local availability of doctors and nurses will also improve.

In conclusion, the main problem facing primary health care in Sergipe is how to raise the quality rather than the quantity of health care. The role of each cadre should be clearly defined, especially in the case of CHWs. Even so, the huge expansion of primary health services has not been able to reach many families living in rural areas and in small municipalities far from the coastal plain or large cities. This limitation urgently requires attention if they are to reduce the gap between the small and poor communities and the larger and richer urbanised municipalities.

The implications of these findings to integration of the different actors, and to extension of IMCI to the communities, are discussed in the next two sections.

10.6 Integration between heath services, mothers and community health workers

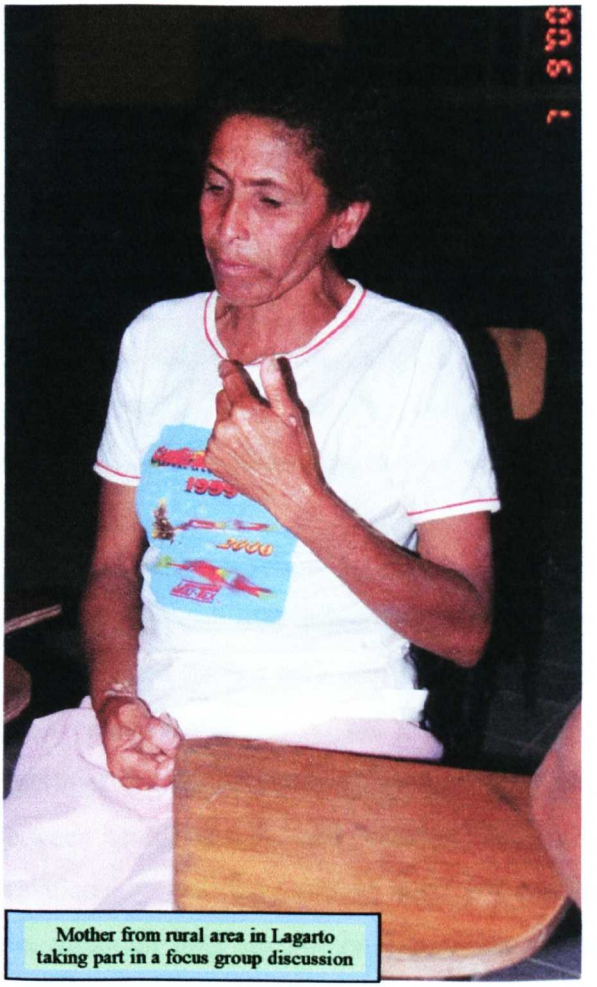
Integration is seen as a key point in this study for extending IMCI to the community and for improving maternal and child health in Sergipe through the action of CHWs. In this study, integration has been measured considering 1) home visits performed by facility workers and CHWs, 2) health facility visits carried out by mothers, 3) number of patients referred by CHWs to the health facility, 4) number of patients who returned to CHWs from health services to be followed and treated by CHWs home, and 5) perception of heads of municipal department of health, doctors, nurses, and CHWs from qualitative studies.

Panel 10.1 shows the perceptions of the actors involved with offering services and using health care at the facility level. The large number of negative perceptions and beliefs expressed by the three groups highlight the pressing need for better integration between health services, health workers and community health workers in Sergipe.

Relationships between health workers and the community were found to be conflicting. This is reflected by the reported inappropriate use of health services, low availability of doctors and nurses, difficulties in accessing health services in some areas, lack of medicines and laboratorial tests, discrimination by doctors against poor and non-white mothers and CHWs, isolation of CHWs in the community and the absence of health team members in the community. These issues were all identified as barriers against better integration.

In addition, with the more recent implementation of IMCI a new focus for conflicts has been generated. According to this strategy, nurses should be able to prescribe some medicines, including antibiotics, but many doctors disagree. The Medical Society of the Sergipe State is against the prescribing of medicines by nurses and has recently managed to stop nurses from being trained. This is in spite of research showing that IMCI-trained nurses prescribe as well as, if not better than doctors (Amaral et al 2004). Obviously, this prohibition has been negatively received by nurses and had a detrimental effect on team work.

Integration of services is often seen by policymakers as an end product in itself (Mills 1983). In this study, integration is assumed to be only a means to improving maternal and child health indicators, such as reducing infant hospitalization rates or increasing antenatal care coverage. Integration is often believed to be a pre-condition to improve the effectiveness of health workers and programmes (MS/PSF 2001). Sergipian policymakers, assume integration is happening. However, in Sergipe, mothers, CHWs, nurses and doctors have conflicting relationships and are not acting together, leading to poor or even non-existent coordination.



Mother from rural area in Lagarto taking part in a focus group discussion

Panel 10.1 also shows reasons why health workers believe that mothers use health services inappropriately. Mothers in

the community do not take part in health service activities because they think they are not useful and because they do not receive adequate attention from health workers. This has also been found in other settings (Flahault 1978; Walt 1990; Frankel 1992; Uzochukwu et al, in press). Conversely, nurses and doctors hardly participate in community activities giving lack of time as their main reason. It appears that they face many difficulties that prevent them working outside health facilities.

Even though many health workers and mothers live in the same communities, they seem to be strangers. Lack of community participation seems to be a serious constraint to improving health indicators and raising the cost-effectiveness of programmes. Participation can be an effective way to extend health care to neglected areas and for the promotion of health education (MacCormack 1983). Also, giving voice to more participation for the population can be a resource for public health services (Mehotra and Jarrett 2002). A lack of participation can affect the implementation of programmes, leading to low rates of participation and utilization (Wayland and Crowder 2002). Finally, health workers, in this study, often described the community as having limited economic, educational, physical and psychological resources and saw few community strengths (Dvrevdahl 1999).

Mothers do show some preferences for doctors, particularly specialist doctors who are seen as having better skills. This type of discrimination is an important barrier to integration and reveals the inability of health workers and mothers to solve their common problems together (Behague et al 2002).

Even in urban areas, where some mothers do not believe that CHWs are useful, CHWs are in general better integrated with mothers than are local doctors and nurses. This integration is even better in rural areas, suggesting that good relationships can be more easily achieved amongst those at greater need.

In conclusion, integration between the community, especially mothers of children under five years old, and health services is generally poor and sometimes non-existent because facility workers usually do not visit families and do not take part in community's life, mothers are regarded to use health facilities unnecessarily but do not take party in its activities, CHWs refer sick people to health facilities but do not receive any feedback from health facility team and finally relationship between health workers and community mothers are often conflicting. However, in rural areas relationships between mothers and CHWs seem to be good because they are more accessible, although they do not have curative skills. Discrimination is a part of the health services in Sergipe. It can be present within the health

team and between them and between the health team and the community, especially doctors and mothers. These problems could seriously affect the future of PSF and IMCI and hence reduce their potential impact on child health indicators. Although these issues are difficult to overcome, some recommendations are given in the next chapter.

10.7 Extending IMCI to the community through community health workers

Chapter Three demonstrated that IMCI is helping to improve child health in developing countries but that in reality its community component does not exist (WHO/MCE 2002). Chapter Six revealed that the IMCI strategy is appropriate in Sergipe because 85% of the childhood diseases affecting children in Sergipe are covered by the strategy (Tulloch 1999). Chapter Nine showed that extending IMCI to the community is positively regarded by almost all those interviewed, particularly the CHWs, and that it can help to define the role of CHWs in maternal and child health. Extending IMCI is recommended, therefore, mainly to reach those children in greatest need with appropriate care and currently suffering from a lack of health care (Tulloch 1999; Bryce et al 2004).

However, important constraints for this extension were identified. With regard to the greater use of CHWs, the main barriers are related to their weak professional standing, poor definition of their tasks, and inadequate training, support and supervision. Another important difficulty facing extension is the poor integration between community, CHWs and health services. Relationships between these three sets of actors are often affected by conflicts, discrimination, lack of patience, isolation, abusive use of authority, poor participation, perceptions of inappropriate use and inadequate health services. The inability of health workers to communicate with mothers and each other and the absence of participation by the community in health service activities makes extending IMCI difficult. Finally, the IMCI strategy depends on well-developed maternal skills in care-seeking, home management and compliance, but on the other hand does not seem to provide such skills in most settings (WHO/MCE 2002). This is true in Sergipe, where mothers in greatest need have less schooling and poor knowledge in child survival and the quality of health care provided to their children seems to be inappropriate. If the above issues are not overcome, extending IMCI to the community is likely to fail.

The most important and positive facilitating factor seems to be the unanimous agreement that such an extension is appropriate and widely desired. Also, extension of IMCI may provide a unique opportunity to redefine the role of CHWs. Most children who die at

home in developing countries do not receive any type of health care (Oluwole et al 2000; Terra de Souza et al 2000; Ali et al 2005). For many others, referral occurs too late with several of them dying from causes that are easily preventable and manageable (Bryce et al 2003). Extending IMCI to the community by upgrading the role of CHWs in the care of sick children has great potential, particularly in rural areas where CHWs are often the only available health workers.

Extension of IMCI to the community through CHWs could improve their professional status. In order to extend IMCI to the household level, CHWs must identify common diseases as pneumonia and dysentery, provide initial treatment, and refer them when necessary. These topics are addressed in the next chapter on Recommendations.

In conclusion, extending IMCI to the community through CHWs seems to have a significant potential to reach those in most need with appropriate care, to reduce inequities by reaching the poorest – as is the case in Sergipe - and to improve child health indicators. In addition, it will provide new opportunities for CHWs to demonstrate their effectiveness and to consolidate their role in the health team. However, there are important constraints related to IMCI, including how to promote the role of mothers in providing early care and how to avoid current conflicts and differing perceptions between mothers, CHWs, doctors and nurses. Some recommendations for extending IMCI to the community through CHWs are given in the Chapter Eleven.

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Chapter Eleven:

Conclusions and recommendations for policy and research

This chapter presents the main conclusion from previous sections and some recommendations for policymakers and for future research on maternal and child health, CHWs and the community component of IMCI.

11.1 Summary of conclusions

The quantitative and qualitative studies enabled us to document the main facilitating factors and barriers for extending IMCI to the community, as well as broader issues relevant to the future of CHWs in maternal and child health. The main conclusions from this thesis include:

- CHWs are effectively contributing to the improvement of equity in Sergipe by preferentially reaching the poorest and achieving universal coverage with child health interventions;
- Mothers visited by CHWs had better knowledge regarding antenatal care, oral rehydration therapy, growth monitoring and vitamin A supplementation, than mothers who were not visited;
- CHWs are overcommitted with often irrelevant tasks, while not being allowed to deliver key interventions that would improve their effectiveness and raise their professional standing;
- Integration between communities, CHWs and facility-based health workers was assessed as being remarkably poor;
- Facilitating factors and barriers for extending IMCI to the community through CHWs were identified and remedial measures are being proposed;
- Our work contributed to the operationalization of the concept of integration for use in future research.

Specific recommendations are proposed to improve their effectiveness, to raise their status in the communities, and to adapt their actions to each setting (e.g. urban or rural).

We are unaware of any other study combining quantitative and qualitative methods to assess the role of CHWs in a large-scale programme, with a specific aim of improving integration. For these reasons, we believe that the lessons learned in Brazil will be of interest

to the international audience.

The next sections present specific recommendations for improving CHWs activities and their effectiveness, promoting integration between CHWs, mothers and facility workers, defining the role of CHWs in the health system and designing future research on CHWs in large scale programmes. Sections 11.2 and 11.3 are particularly relevant to international organizations promoting IMCI, such as WHO and UNICEF. Sections 11.4 and 11.5 are especially addressed to the Brazilian Ministry of Health and to the health managers in Brazilian states.

11.2 Improving community health workers activities, training and support

To improve the effectiveness of CHWs in large scale programmes, their role has to be clearly defined (see Section 11.5). Their training has to be appropriate to the real-world working environment that they will face; for instance, instead of being trained inside health facilities, as is currently the case, their training should include home visits and community activities. Their support and supervision have to be continuous, to keep them from working isolated in the community. They also require regular refresher courses to keep their knowledge up-to-date. Lastly, the issues they need to address during home visits and the tasks they must perform have to be very specific to the communities where they are working. For this purpose, large programmes should take into account regional differences in terms of the infrastructure of health services, cultural and geographical access, and patterns of disease, and adapt CHW training to these particularities.

National coordination should only define general guidelines for CHW training. At regional or municipality level the programme should allow local adaptation. In the case of Brazil, for instance, it does not make sense for a CHW from the South of the country to be trained on how to deal with dengue fever.

CHWs should deal with curative, preventive and educative tasks, but this should vary according to where they are working. For instance, CHWs from rural areas should provide some curative care because geographical access to facilities is limited, while in urban areas CHWs should prioritize preventive and educative tasks because the availability of doctors and nurses is generally adequate.

CHWs should therefore be doing preventive, educative or curative care according to the local availability of doctors and nurses. For example, CHWs should promote adequate antenatal care assistance by recruiting pregnant women in the community and advising them

to undertake all the recommended consultations, vaccinations and diagnostic tests. After childbirth, CHWs should promote exclusive breastfeeding, the timely and appropriate introduction of complementary foods and basic child immunization. They should also advise families on the home management of diarrhoeal diseases and acute respiratory infections, and on when to seek health care. In rural areas, they should be able to provide community case-management, including antibiotics for pneumonia, sepsis and dysentery.

11.3 Improving integration between community health workers, mothers and local health services

The role of CHWs in the health team should be to offer basic health care at household level under the strict supervision of facility workers, especially doctors and nurses. Also, CHWs should facilitate integration between facility workers and the community, especially mothers who are the main responsible for the utilization of health services by young children. Integration here means that community members should take part in preventive and curative health service activities, and that facility-based workers should be more active in the communities they serve.

Integration between the community and local primary health care services is a key component of community IMCI. However, in Sergipe as well as elsewhere, community IMCI remains as an unfulfilled promise. On one hand, many mothers do not know what each cadre of health worker is supposed to do, and are reluctant to take part in health service activities. On the other hand, doctors and nurses have little if any participation in community life. Policymakers pay lip service to integration, but fail to take the necessary actions to implement it successfully.

To improve integration it is necessary that doctors and nurses, particularly those from PSF, participate more effectively in community life. Participating, in this context, means promoting and attending community meetings on health related issues, providing health care in the household when necessary, and gaining the confidence of the community by being present at the facility during scheduled hours and offering compassionate and high-quality health care. Doctors and nurses will also promote integration by providing adequate support for CHWs and valuing their role.

Community members, particularly mothers of children under five years old, must also contribute to integration by taking active part in preventive and curative health services activities, learning what each cadre can deliver, and not making unrealistic demands on

health systems.

Integration has to be seen as a means to improve people's health and not as an end in itself as assumed by many health workers and policymakers. This misunderstanding about the meaning of integration is a serious constraint to reducing conflicts between communities and facility workers and thereby to improving health indicators. CHWs must facilitate the participation of doctors and nurses in community life, and vice-versa. They should act as a catalyst promoting a more intense relationship between facilities and communities.

11.4 Improving Integrated Management of Childhood Illness and community health workers in Sergipe

CHWs have an enormous potential to improve IMCI in Sergipe because they visit eight out of ten children around the State on a monthly basis and reach those at greatest need. In spite of the many problems described above, extending IMCI into the community through CHWs seems to be a desirable, feasible and appropriate goal. The constraints facing the success of IMCI seem to be more closely related to deficiencies in the Brazilian health system rather than to the IMCI strategy itself.

As currently implemented in Brazil, the IMCI strategy is limited to providing health care at facility level, in accordance with the IMCI algorithms. The community component has not been adequately implemented. CHWs can play a fundamental role if they are given a wider set of skills and received more support and supervision from health teams. Thus a successful IMCI strategy requires redefining the role of CHWs in the health system, particularly in terms of maternal and child health care.

However, giving CHWs greater responsibilities for implementing the IMCI strategy is likely to confront many constraints, particularly the corporative behaviours of doctors and nurses. Senior policy makers and all cadres of health workers must join efforts to overcome these barriers. Unless the pro-poor focus of CHWs is relied upon, IMCI may primarily benefit urban and wealthier families, thus leading to increased inequities in child health in Sergipe.

11.5 The future of community health workers in Brazil

There is no doubt that CHWs can be effective in diagnosing and managing illness episodes due to specific diseases. This has being widely demonstrated by small scale programmes. There is greater uncertainty, however, when small programmes are expanded

and become large programmes, as the chances of failure and disillusionment become higher.

Community health worker from urban area in Malhador

In Sergipe State, CHWs have already achieved impressive levels of access and coverage among poor children. However, despite this huge expansion there appears to have been little apparent impact on child health indicators. This can partially be explained by CHW's lack of skills in curative care and the absence of a clear definition of their tasks in maternal and child health care. There are also, as previously mentioned, serious problems concerning their training, support and supervision. All these factors have severely affected their professional standing, both in the community and with other primary health care workers. It should be noted that in many other developing countries such problems and constraints have been responsible for the suspension or interruption of many similar CHW programmes. Reliance on CHWs, therefore, could also be undermined and the programmes face collapse, not only in Sergipe but also in other states in Brazil. Hence the future of CHWs in Brazil is at a critical phase and remains highly uncertain.

11.6 Policy recommendations

Our general recommendations are related to the future of the IMCI strategy and the role of CHWs within this strategy. For each of these two topics, there are three broad options. The first policy option is to continue with the present approach, without any substantial

changes. For the reasons discussed along this thesis, this option would probably lead to disillusionment with both the IMCI strategy and the use of CHWs, possibly followed by their abandonment as was the case in other countries.

The second option would be to reduce the reliance on CHWs and to offer a trimmed-down IMCI programme exclusively based on health facilities. However, this option would go against the PHC approach, and likely increase health inequalities by favouring families living close to facilities.

The third option would be to reconsider and expand the role of CHWs within the community component of IMCI, thus leading to a stronger IMCI strategy and ensuring universal and equitable access to poor and rural populations.

Based on the results of this study, presented in previous chapters, some specific recommendations can be made for improving maternal and child health, the effectiveness of CHWs and the IMCI strategy in Sergipe as well as in similar areas. These include:

- Developing training materials for CHWs on preventive child survival interventions, care-seeking and home management of common illnesses, that are compatible with IMCI messages; this is expected to lead to improved maternal knowledge about child survival, initial management of sick children at home and care seeking behaviour;
- Ensuring that all CHWs in the country are trained in these basic contents of community IMCI, tailored to their specific region of the country;
- For CHWs working in rural areas, providing additional training on community case-management of dysentery, pneumonia and sepsis;
- Ensuring that facility-based workers supervise CHWs during family visits on a regular basis, e.g. at least once a month, thus improving feedback between these two cadres of workers;
- Monitoring and evaluating the quality of CHW performance in the above areas by establishing regular monitoring activities;
- Improving the professional standing of CHWs by assuring that they receive job security and fringe benefits;

Most of the problems and constraints revealed by this evaluation could be overcome if the above recommendations were implemented. The main challenges for policy makers and senior health professionals is how to continue to expand the PSF programme as envisaged, while also improving CHW effectiveness and extending IMCI fully into the community.

11.7 What are the recommendations for future research?

Our findings have raised questions about the role of CHWs in health teams and their effectiveness in large scale programmes. We also generated some new research questions that are relevant to many developing countries. Among them are:

- How to measure integration between communities and health services in different contexts?
- What are the opportunities and barriers regarding an increased role of CHWs for delivering IMCI?
- How to raise the professional standing of CHWs?
- How to improve the utilisation of health services by mothers of children under five years of age?
- How to improve mothers' participation in activities promoted by local health services, and that of doctors and nurses in the lives of their local communities?

All of these questions are relevant to Sergipe State, as well as for Brazil as a whole. We also believe that they are important to other countries. Because contextual factors may be different in each country, these research questions need to be addressed in multiple sites.

Further research on these questions could help to increase the effectiveness of community health workers and child health programmes as well as promote the better utilisation of health services and reduce inequities in child health.


Mother and children from urban area in São Cristóvão

Primary health care and maternal and child health remain very exciting topics for investigation. They deal with some of the most vulnerable people in society, particularly, in developing countries. However, they are also neglected by many governments, especially where greater investments are needed. Although the health situation of mothers and children has improved in Brazil in the recent past, important constraints remain as a part of the heritage of a health system that has focused almost exclusively on treating diseases. Without profound changes, the impact of the PSF and IMCI strategies will be limited, and many children will continue to die unnecessarily from diseases that can easily be prevented and cured.

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Appendix

A1. Approval from ethical committee of London School of Hygiene and Tropical Medicine

LONDON SCHOOL OF HYGIENE
& TROPICAL MEDICINE

Application number 595

FORM B

ETHICS COMMITTEE
APPROVAL FORM

Name of Principal Investigator **Juraci Cesar**

Department **Epidemiology & Population Health**

Head of Department **Professor Betty Kirkwood**

Title **Community health workers: how can they contribute to the integrated management of childhood illness strategy?**

Comments from the Committee:

See attached

Approval is dependent on local ethical approval having been received.

Any subsequent changes to the consent form must be re-submitted to the Committee.

Approval of this study is granted by the Committee.

Chair .....

Date 14 Oct 99

Dr A M Rafferty

LONDON SCHOOL OF HYGIENE &
TROPICAL MEDICINE

Application number 595

ETHICS COMMITTEE
COMMENTARY FORM

Name of Principal Investigator Juraci Cesar

Department EPH

Head of Department Professor Betty Kirkwood

Title **Community health workers: how can they contribute to the integrated management of childhood illness strategy?**

agree that the project is ethically sound: (YES) NO

have the following comments:

agree with the proposals for obtaining informed consent: (YES) NO

have the following comments: Ensure the information form refers to include a section where consent has been recorded. In section 8 (Confidentiality) it is assumed that confidentiality and anonymity are interchangeable. How will confidentiality be assured and the data stored?

SIGNATURE [signature] DATE 13/10/99

A2. Approval from ethical committee of Universidade Federal do Rio Grande, RS, Brazil, in Portuguese

"Da: Comissão de Ética em Pesquisa Médica
Hospital Universitário
Universidade Federal do Rio Grande, RS

Para: Juraci A. Cesar

Rio Grande, 07 de outubro de 1999.

Tem este documento a finalidade de informar que seu projeto de pesquisa para tese de doutoramento em Epidemiologia intitulado '**Community Health Workers: How Can They Contribute to the Integrated Management of Childhood Illness Strategy**' foi analisado por esta Comissão, tendo sido aprovado e liberada sua execução dentro dos parâmetros propostos.

Atenciosamente,

Prof. Sérgio Nunes
Presidente da Comissão de Ética Médica
Hospital Universitário Dr. Miguel Riet Corrêa Jr.
Universidade federal do Rio Grande
Rio Grande, RS, Brasil

A3. Approval from ethical committee of Universidade Federal do Rio Grande, RS, Brazil, in Portuguese

"From: Ethics Committee, Faculty of Medicine
Hospital Universitário
Universidade Federal do Rio Grande, RS

To: Juraci A. Cesar

Rio Grande, 07 October 1999.

We are pleased to inform you that your project named '**Community Health Workers: How Can They Contribute to the Integrated Management of Childhood Illness Strategy**' was approved by this Committee to be carried out according to the purpose.

Sincerely,

Prof. Sérgio Nunes
Head of Ethical Committee
Hospital Universitário Dr. Miguel Riet Corrêa Jr.
Universidade federal do Rio Grande
Rio Grande, RS, Brasil

B1. Introductory letter for mothers in Portuguese

"A Organização Munidal da Saúde, a Universidade de Londres, Inglaterra, e Universidade de Rio Grande, Brasil, estão fazendo um estudo sobre o programa de agentes comunitários de saúde em Sergipe. Este estudo quer saber que tipo de atividade eles desenvolvem, como fazem estas atividades e quais dificuldades enfrentam ao executá-las. Além disso, esta pesquisa quer encontrar a melhor maneira de oferecer cuidados integrais a todas as crianças dentro do seu próprio domicílio. É um novo programa da Organização Mundial da Saúde chamado 'Atenção Integrada às Doenças Prevalentes na Infância' que está sendo implantado aqui no Brasil. Por estes motivos, o Sr/Sra. foi escolhido para participar deste estudo. Gostaríamos, se possivel, que concordasse em nos responder algumas perguntas. Elas são bastante simples e, se não souber alguma delas, não há problema algum. Também, gostaríamos de assegurar que tanto o seu nome quanto as suas respostas serão mantidas em segredo. Somente os pesquisadores diretamente envolvidos neste estudo terão acesso a elas. Se necessitar de mais algum esclarecimento, o Dr. Juraci César, coordenador do estudo, poderá vir conversar com a Sr/Sra e lhe prestar todas as informações necessárias.

Muito obrigado pela sua atenção."

B2. Introductory letter for mothers in English

"The World Health Organisation, the University of London and the Federal University of Rio Grande are conducting a study on the Community Health Worker Programme in Sergipe. This study wants to find out what type of work community health workers do, how they conduct this work and to understand the difficulties they face. In addition, this study wants to discover the best way to offer complete care to all children within their home as part of a new WHO programme named Integrated Management of Childhood Illness, which is being implemented in Brazil. We would therefore like to include you in this study. With your agreement, we would like to ask you some questions. They are straightforward and please do not worry if you do not have an answer to them. We would like to assure you that your name and your responses will be kept confidential and only the researchers directly involved with the study will have access to the information. If you have any questions about the study, the study coordinator, Dr. Juraci Cesar, can come and discuss with you and give you any necessary information.

Thank you very much for your attention."

C1. Questionnaires about children's family and their mothers

C2. Questionnaire about children

C3. Questionnaires about community health workers

Organização Mundial da Saúde Escola de Higiene e Medicina Tropical da Universidade de Londres Universidade Federal do Rio Grande Secretaria de Estado da Saúde de Sergipe Rede Brasileira de Informação e Documentação sobre a Infância e Adolescência	Número do questionário __ __ __ __

QUESTIONÁRIO GERAL SOBRE A MÃE E A FAMÍLIA

1. IDENTIFICAÇÃO: __ __ __ __ __ __ __ __ __ __ — idm __ __ __ __ __ __ __ __ __ __

2. PROGRAMA: (1) PACS (2) PSF (3) Pastoral (4) PACS + Pastoral (5) PSF + Pastoral — progm __

3. MUNICÍPIO: __ __ SETOR CENSITÁRIO: __ __ __ __ — munim __ __ setorm __ __ __ __

ndomae __ __

4. NÙMERO DOMICÍLIO: __ __ NÚMERO DA MÃE: ___ — nmae __

5. ÁREA: (1) Urbana (2) Rural — aream __

6. Qual o seu nome completo? _____

7. COR DA PELE: (1) Branca (2) Morena (3) Preta (4) Amarela — cormae __

8. Quantos anos a senhora tem? __ __ anos *(Confirmar se já completou)* — idmae __ __

9. A senhora sabe ler e escrever? (1) Sim (2) Não (3) Só assina — lermae __

10. Até que série a senhora estudou na escola? __ª do __ º grau *(Confirmar se já completou)* — seriem __ graum __

11. Quais são as pessoas que moram na sua casa?
    Pai (da criança) : (1) Sim (2) Não — paimo __
    Mãe (da criança) : (1) Sim (2) Não — maemo __
    Filhos: __ (número) — filmo __
    Outros: __ __ (número) — outmo __ __

12. A senhora tem marido/companheiro? (1) Sim **(2) Não [→14]** — compa __

13. SE SIM: Ele vive com a senhora?
    (1) Sim, o tempo todo (2) Sim, de vez em quando — viveju __

14. O seu marido/companheiro sabe ler e escrever?
    (1) Sim (2) Não (3) Só assina — lerpai __

15. Até que série ele estudou na escola? __ª do __ º grau *(confirmar se completou)* — seriep __ graup __

16. Morreu alguma criança com menos de cinco anos na sua casa desde <MÊS DE DOIS ANOS ATRÀS> pra cá? (0) Não ( ) Sim, quantas: __ crianças — ob24m __

17. Nasceu alguma criança na sua casa desde <MÊS DE DOIS ANOS ATRÀS> pra cá? (0) Não ( ) Sim, quantas: __ crianças — nas24m __
    (Nas perg. 16 e 17 confirmar se a mulher ainda mora na casa)

18. A senhora está grávida? (1) Sim (2) Não (3) Não sabe — gravida __

19. A senhora já ouviu falar no líder da Pastoral da Criança? (1) Sim **(2) Não [→ 21]** falap __

20. SE SIM: Ele visita a sua casa? (1) Sim (2) Não lpvis __

21. E no agente comunitário de saúde, a senhora já ouviu falar? acasf __
(1) Sim **(2) Não [Se 19 tbém → 64]**

22. SE SIM: Ele visita a sua casa? (1) Sim (2) Não lpvis __

SE RECEBE VISITA DO AGENTE DE SAÚDE:

23. A senhora já conhecia o agente de saúde antes dele começar a visitar a sua casa? conhag __
(1) Sim (2) Não (3) Não lembra

teaviag __

24. Há quanto tempo o agente de saúde visita a sua casa? __ ano(s) __ __ mê(ses) temviag __ __

25. O agente de saúde mora nesta área? (1) Sim (2) Não (3) Não sabe morag __

26. A senhora sabe onde é a casa dele? morag __
(1) Sim (2) Não (3) Mais ou menos (4) Não sabe

27. De quanto em quanto tempo o agente de saúde visita a sua casa? frevags __
__ vez por semana __ por mês __ por ano *('0' para os não referidos)* frevagm __
frevaga __

28. Quanto tempo faz que o agente de saúde visitou a sua casa pela última vez? ultvagm __ __
__ __ mês(es) __ __ dias *(Anotar 77, 77 se mais de 1 ano e 00 se menos de 1 mês ou 1 ano)* ultvagd __ __

29. A senhora poderia me dizer o que o agente de saúde faz durante estas visitas?

Pergunta se tem ou teve alguém doente na casa desde a última visita	(1) S, esp. (2) S, ind. (3) Não	doeag __
Marca consulta no posto de saúde?	(1) S, esp. (2) S, ind. (3) Não	marag __
Ensina a preparar o soro caseiro	(1) S, esp. (2) S, ind. (3) Não	soroag __
Distribui colher-medida de plástico?	(1) S, esp. (2) S, ind. (3) Não	dicoag __
Incentiva fazer exame no posto de saúde para prevenir câncer no útero e no seio?	(1) S, esp. (2) S, ind. (3) Não	incag __
Encaminha gestantes ao pré-natal?*	(1) S, esp. (2) S, ind. (3) Não	encgag __
Pesa todo mês crianças menores de 2 anos?**	(1) S, esp. (2) S, ind. (3) Não	pesag __
Ensina sobre alimentação alternativa/lambedor?	(1) S, esp. (2) S, ind. (3) Não	alalag __
Orienta sobre dar de mamar no peito?***	(1) S, esp. (2) S, ind. (3) Não	mamag __
Ensina/recomenda vacinar as crianças da casa?	(1) S, esp. (2) S, ind. (3) Não	vaciag __
Outro:_____	(0) Não	outag __

*(Investigue se as perguntas *, ** e *** são aplicáveis à entrevistada)*

30. O que mais você gostaria que o agente de saúde fizesse durante estas visitas?

Fizesse curativo	(1) Sim	(2) Não	curage __
Medisse a pressão	(1) Sim	(2) Não	presag __
Aplicasse injeção	(1) Sim	(2) Não	injeag __
Distribuísse medicamentos	(1) Sim	(2) Não	dismag __
Marcasse ou marcasse mais consultas médicas	(1) Sim	(2) Não	marcoag __
Distribuísse cesta básica	(1) Sim	(2) Não	dicebag __
Outro: _____		(0) Não	oufag __

31. A senhora acha que o agente de saúde é capaz de dizer se uma criança:

Tem risco de ter canseira/cansaço?	(1) Sim	(2) Não	pnmag __
Com diarréia precisa ser levada ao médico?	(1) Sim	(2) Não	dimeag __
Está crescendo bem?	(1) Sim	(2) Não	cresag __
Está aprendendo bem as coisas?	(1) Sim	(2) Não	apreag __
Precisa tomar remédio contra febre?	(1) Sim	(2) Não	refeag __

32. A senhora está satisfeita com o trabalho do agente comunitário de saúde? satag __
(1) Sim (2) Não **(3) Mais ou menos [→36]**

33. SE SIM OU NÃO: Por quê?_____ pqsiag __ __
_____ pqnag __ __
_____
_____

34. Se o agente de saúde dissesse para a senhora que o seu filho está doente e precisa ser levado depressa para o posto de saúde, a senhora acreditaria? acreag __
(1) Sim **(2) Não** **(3) Talvez [Se 2 ou 3, → 65]**

35. SE SIM: A senhora levaria? (1) Sim (2) Não (3) Talvez levalp __
[SE 23 E 24 FOREM NEGATIVAS → DA 37 PARA A 66]

Se foi visitada pelo líder/agente, → 66 e complete da 64 e 65 com '8'.

36. A senhora gostaria de ser visitada em casa por alguém que oferecesse de graça algum tipo de cuidado em saúde? (1) Sim (2) Não (3) Tanto faz

37. SE SIM NA 64: O que a senhora gostaria que esta pessoa fizesse durante estas visitas a sua casa?

Marcasse consulta médica	(1) S, exp. (2) S, ind. (3) Não (3) NSb	goscon __
Trouxesse remédio	(1) S, exp. (2) S, ind. (3) Não (3) NSb	gosrem __
Ensinasse a preparar o soro caseiro	(1) S, exp. (2) S, ind. (3) Não (3) NSb	gosoro __
Medisse a pressão	(1) S, exp. (2) S, ind. (3) Não (3) NSb	gospre __
Conversasse sobre prevenção de câncer	(1) S, exp. (2) S, ind. (3) Não (3) NSb	goscan __
Ensinasse sobre tratar o lixo doméstico	(1) S, exp. (2) S, ind. (3) Não (3) NSb	goslix __
Aplicasse Injeção	(1) S, exp. (2) S, ind. (3) Não (3) NSb	gosinj __
Pesasse os filhos pequenos	(1) S, exp. (2) S, ind. (3) Não (3) NSb	gospe __
Ensinasse sobre amamentação e dieta da criança	(1) S, exp. (2) S, ind. (3) Não (3) NSb	gosam __
Fizesse curativo	(1) S, exp. (2) S, ind. (3) Não (3) NSb	goscur __
Outro: _____	(0) Não	gosoul __

38. Alguma vez, o médico do posto de saúde visitou a sua casa? vismed __
(1) Sim **(2) Não [→ 70]** **(3) Não lembra [→ 70]**

39. SE SIM: Faz quanto tempo que ele veio aqui na sua casa pela última vez? tevimem __
__ mês __ __ dias tevimed __ __

40. Nesta visita, o médico veio por que quis ou porque vocês pediram? pemevis __
(1) Veio por conta própria (2) Nós pedimos no posto de saúde
(3) Nós pedimos ao agente ( ) Outro: _____

41. Nesta ocasião havia alguém doente na sua casa? (1) Sim (2) Não domevis __

42. Alguma vez, a enfermeira do posto de saúde visitou a sua casa? visenf __
(1) Sim **(2) Não [→ 74]** **(3) Não lembra [→ 74]**

43. SE SIM: Faz quanto tempo que ela veio aqui na sua casa pela última vez? teviem __
__ mês __ __ dias tevied __ __

44. Nesta visita, a enfermeira veio por que quis ou porque vocês pediram? penvis __
(1) Veio por conta própria
(2) Nós pedimos no posto de saúde
(3) Nós pedimos ao agente
( ) Outro: _____

45. Nesta ocasião havia alguém doente na sua casa? (1) Sim (2) Não doenvis __

46. Quais os tipos de soro para tratar diarréia que a senhora conhece?

1) Soro de pacote	(1) Sim, esp.	(2) Sim, ind.	(3) Não	pacon __
2) Soro caseiro, colher-medida	(1) Sim, esp.	(2) Sim, ind.	(3) Não	colcon __
3) Soro caseiro, punhado-pitada	(1) Sim, esp.	(2) Sim, ind.	(3) Não	ppcon __
4) Outra solução caseira sal/açúcar	(1) Sim, esp.	(2) Sim, ind.	(3) Não	sosacon __
5) Soro comprado na farmácia	(1) Sim, esp.	(2) Sim, ind.	(3) Não	sofacon __
6) Soro de cereais/água de arroz	(1) Sim, esp.	(2) Sim, ind.	(3) Não	socecon __
7) Outro tipo de soro : _____			(0) Não	ousoro __

47. Qual deles a senhora prefere? ____ ***('0' se não tem preferência por nenhum tipo de soro)*** **[→ 77]** soropre __

48. SE PREFERE ALGUM DELES: Porque a senhora prefere <SORO>?

Se parece com remédio	(1) Sim	(2) Não	parem __
É mais fácil de preparar	(1) Sim	(2) Não	fapre __
Tem efeito mais rápido	(1) Sim	(2) Não	efrap __
Está mais a mão/tem em casa	(1) Sim	(2) Não	amao __
Não tem perigo de errar ao fazer	(1) Sim	(2) Não	naoerra __
É mais barato	(1) Sim	(2) Não	barato __
É mais higiênico	(1) Sim	(2) Não	limpo __
Outro:_____		(0) Não	oupre1 __

49. Quando uma criança com diarréia deveria ser levada ao posto de saúde: Quando...

A diarréia dura duas semanas ou mais?	(1) Sim	(2) Não	(3) Não sabe	14dps __
Tem falta de apetite?	(1) Sim	(2) Não	(3) Não sabe	apeps __
Têm desidratação?	(1) Sim	(2) Não	(3) Não sabe	desps __
Vomita?	(1) Sim	(2) Não	(3) Não sabe	vomps __
Tem febre?	(1) Sim	(2) Não	(3) Não sabe	febps __
Tem sangue nas fezes?	(1) Sim	(2) Não	(3) Não sabe	sangps __
Tem catarro nas fezes?	(1) Sim	(2) Não	(3) Não sabe	pusps __

50. A senhora tem em casa uma colher-medida de plástico para preparar o soro caseiro? colmed __
Pode me mostrar?
(1) Sim, e foi vista (2) Sim, mas não foi vista
(3) Tinha mas perdeu **(4) Nunca teve [→ 82]**

51. SE TEM OU TINHA E PERDEU: Onde a senhora conseguiu esta colher-medida? ondecol __
(1) Posto de saúde (2) Hospital (3) Igreja
(4) Com o agente (5) Com o líder ( ) Outro: _____

52. Quantas colheres-medidas a senhora já ganhou? __ __ (99 se não sabe, não lembra) qtcol __ __

53. Faz quanto tempo que a senhora ganhou a última colher-medida? tecola __ tecolm __ __ tecold __ __
__ ano(s) __ __ mês(es) __ __ dias

54. A senhora já viu um cartão como este? viucar __
(1) Sim, já vi **(2) Não, nunca vi [→ 84]** **(3) Não lembra [→ 84]**

55. SE SIM: Para que serve este cartão?

Marcar o peso da criança	(1) Sim	(2) Não	marpeso __
Marcar as vacinas	(1) Sim	(2) Não	marvac __
Acompanhar o desenvolvimento	(1) Sim	(2) Não	mardes __
Acompanhar o crescimento	(1) Sim	(2) Não	marcres __
Marcar consulta no posto de saúde	(1) Sim	(2) Não	marcon __
Outro: _____		(0) Não	carout __

56. CARTÃO 1: Esta parte do cartão mostra o peso de uma criança durante os primeiros meses de vida. A senhora acha que esta criança está em perigo? cartao1 __
(1) Sim **(2) Não [→ 86]** **(3) Mais ou menos [→ 86]**

57. SE SIM: A senhora acha que esta criança precisa ser levada ao posto de saúde? perigo1 __
(1) Sim (2) Não (3) Não sabe

58. CARTÃO 2: E esta outra criança, a senhora acha que ela está em perigo? cartao2 __
(1) Sim **(2) Não [→ 88]** **(3) Não sabe [→ 88]**

59 SE SIM: A senhora acha que esta criança precisa ser levada ao posto de saúde? perigo2 __
(1) Sim (2) Não (3) Não sabe

60. Uma criança com um ano de idade, sem febre, que não quer se alimentar e que quando respira dá para ver todas as costelinhas precisa ser levada ao médico? pnmti __
(1) Sim **(2) Não [→ 90]** **(3) Não sabe [→ 90]**

61. SE SIM: Que doença ela pode ter? doeti __
(1) Pneumonia (cansaço/canseira/cançado)
(2) Outra doença respiratória
(3) Não sabe
( ) Outra doença: _____

62. Na sua opinião, quando uma criança deveria ser levada depressa ao posto de saúde:
Quando...

Não consegue mamar no peito ou tomar líquidos?	(1) Sim (2) Não (3) Não sabe	lemama __
Não melhora de uma doença ou problema?	(1) Sim (2) Não (3) Não sabe	lenamel __
A febre não passa?	(1) Sim (2) Não (3) Não sabe	lefebre __
Tem dificuldade para respirar?	(1) Sim (2) Não (3) Não sabe	ledifres __
Tem respiração rápida?	(1) Sim (2) Não (3) Não sabe	leresra __
Tem sangue nas fezes?	(1) Sim (2) Não (3) Não sabe	lesanfe __
Toma pouco líquido?	(1) Sim (2) Não (3) Não sabe	lepoliq __
Vomita tudo o que bebe ou come?	(1) Sim (2) Não (3) Não sabe	levomi __
Têm ataque (convulsões)?	(1) Sim (2) Não (3) Não sabe	leconv __

63. Uma criança de sete meses de idade no colo da mãe e respirando 60 vezes em um minuto está ou não doente? (1) Sim **(2) Não [→ 93]** **(3) Não sabe [→ 93]** — pnm60 __

64. SE SIM: Que doença ela pode ter? — doe60 __
(1) Pneumonia (cansaço/canseira/cançado)
(2) Outra doença respiratória
(3) Não sabe
( ) Outra doença: _____

65. A partir de que idade a senhora acha que uma criança deveria ser levada ao posto de saúde por não conseguir ficar em pé sozinha? __ ano(s) __ __ meses — fipe6a __ fipe6m __ __

66. Uma criança com um ano e meio de idade que não consegue falar uma palavra inteira precisa ser levada ao posto de saúde? (1) Sim (2) Não (3) Não sabe — fala1a __

67. A senhora saberia me dizer contra que doenças uma criança deveria estar vacinada aos oito meses de idade?

Paralisia infantil/Pólio	(1) Sim, esp.	(2) Sim, ind.	(3) Não	polio __
Sarampo	(1) Sim, esp.	(2) Sim, ind.	(3) Não	sara __
Coqueluche	(1) Sim, esp.	(2) Sim, ind.	(3) Não	coque __
Tétano	(1) Sim, esp.	(2) Sim, ind.	(3) Não	teta __
Difteria	(1) Sim, esp.	(2) Sim, ind.	(3) Não	dift __
Hepatite	(1) Sim, esp.	(2) Sim, ind.	(3) Não	hepa __
Tuberculose	(1) Sim, esp.	(2) Sim, ind.	(3) Não	tbc __
Gripe/Infecção respiratória	(1) Sim, esp.	(2) Sim, ind.	(3) Não	hae __

68. A senhora já ouviu falar na vacina BCG? (1) Sim **(2) Não [→ 100]** — fabcg __

69. SE JÁ OUVIU FALAR: Contra que doença ela protege? — probcg __
(1) Tuberculose (2) Pneumonia (3) Sarampo
(4) Não Sabe ( ) Outra:_____

70. Como é dada a vacina contra a BCG? — dadabcg __
(1) Gotinhas na boca (2) Injeção no braço (3) Injeção na nádega
(4) Injeção na coxa (5) Não sabe ( ) Outra:_____

71. Como podemos comprovar, sem a carteira de vacinas, se uma criança foi vacinada pela BCG? (1) Cicatriz no braço (2) Não sabe (3) Não há como saber — confbcg __

72. O que a senhora acha de uma criança de um mês de idade que mama no peito e recebe chás ou água todos os dias. Isto é bom, ruim, ou não faz diferença?
(1) Bom (2) Ruim (3) Não faz diferença (4) Não sabe

liqbom __

73. Na sua opinião, até que idade uma criança deveria mamar somente no peito sem receber água, chás, suco ou qualquer outro tipo de alimentos? __ __ mês(es)

mamesc __ __

74. E até que idade uma criança deveria receber leite de peito? __ ano(s) __ __ meses

mamprea __
mampred __ __

75. A partir de que idade a senhora acha que uma criança deveria começar a usar mamadeira?
__ __ ° mês *(77, imediatamente; 98, nunca deve receber; 13, se com mais de 1 ano)*

mamade __ __

76. A partir de que idade a senhora acha que uma criança deveria começar a usar chupeta?
__ __°mês *(77, imediatamente; 98, nunca deve receber; 13 se com mais de 1 ano*

bico __ __

77. Quanto tempo depois de nascida a senhora acha que uma criança deveria ser colocada para mamar no peito da mãe?
__ __ hora *(00 se na antes de uma hora)*
__ __ dia *(77 se imediatamente)*

mamaho __ __
mamadi __ __

78. A partir de que mês de gravidez a senhora acha que uma mulher deveria começar as consultas de pré-natal? __ __ ° mês *(77 = quando descobrir)*

inipre __ __

79. Quantas consultas com médico a senhora acha que uma mulher deveria fazer durante toda a gestação? __ __

consde __ __

80. Quantas doses de vacina contra o tétano uma mulher deveria receber na primeira gravidez? __ doses

dosetet __

81. Uma mãe teve um filho há quatro anos e, naquela gravidez, tomou três doses de vacina contra o tétano. Esta mesma mãe está grávida de novo. Para esta gravidez ela precisa tomar vacina contra o tétano?
(1) Sim **(2) Não [→ 111]** **(3) Não sabe [→ 111]**

esqtet __

82. SE SIM: Quantas doses ela precisa tomar? __ doses *('9' se não sabe)*

ntet __

83. Quais exames a senhora acha que uma gestante deveria fazer durante a gravidez?

Exame de urina	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	uripre __
Exame de fezes	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	fezpre __
Exame de sangue	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	sanpre __
Exame para câncer no útero	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	capre __
Teste para AIDS (HIV)	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	hivpre __
Teste para Rubéola	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	rupre __
Teste para Sífilis	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	sifpre __
Teste para Hepatite	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	hepre __
Fazer ultrassom do nenê	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	sompre __
Outro1:_____				(0) Não	ex1pre __
Outro2:_____				(0) Não	ex2pre __

84. Além desses exames, o que mais a senhora acha que o médico deveria fazer durante a consulta para uma gestante no pré-natal?

Medir a pressão	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	mepre __
Medir a barriga	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	mebar __
Fazer exame de toque/por baixo	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	baipre __
Examinar o seio	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	mapre __
Escutar o coração do nenê	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	sompre __
Ensinar a dar de mamar no peito	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	amapre __
Conversar sobre o tipo de parto	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	parpre
Pesar a gestante	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	pesapre __
Outro1:_____				(0) Não	copre1: __
Outro2: _____				(0) Não	copre2: __

85. Qual é o serviço de saúde do Estado ou da Prefeitura mais próximo da sua casa? — sprox __
(1) Posto/Centro de Saúde
(2) Atendimento 24 horas
(3) Hospital/Pronto Socorro
( ) Outro:_____

86. Qual é a distância da sua casa até este <SERVIÇO DE SAÚDE> mais próximo? — dists __ __
__ __ km *('00'=se menos de 1 km; 1 légua = 6 km)*

87. Quanto tempo a senhora gasta da sua casa até este <SERVIÇO DE SAÚDE> mais próximo: — discah __ discam __ __ dispeh __ dispem __ __
De carro/ônibus: __ horas __ __ minutos
Caminhando: __ horas __ __ minutos

88. A senhora. mora em casa própria, alugada ou cedida/emprestada? — propria __
(1) Própria (2) Alugada (3) Cedida/Emprestada

89. A casa onde a senhora. mora fica em área de invasão? — invasao __
(1) Sim (2) Não (3) Não sabe

90. A sua casa é de: — tipcasa __
(1) Madeira (2) Taipa (3) Tijolo
(4) Tijolo e taipa (5) Tijolo/madeira (6) Papelão, lata
(7) Palha (8) Outro

91. Como é o piso da sua casa? — piso __
(1) Cerâmica (2) Cimento (3) Carpete
(4) Tábua (5) Chão batido/terra (6) Outro

92. Quantos compartimentos tem a sua casa? __ __ compartimentos — compaca __ __

93. Quantos compartimentos usam para dormir? ___ compartimentos — compado __

94. Tem água encanada? — aguaenc __
(1) Sim, dentro de casa (2) Sim, no terreno (3) Não

95. De onde vem a água usada para beber? — fonte __
(1) Rede pública (2) Chafariz (3) Cisterna, poço
(4) Rio, lagoa, açude (5) Caminhão – pipa (6) Outro

96. Como é a privada da casa? — privada __
(1) Sanitário com descarga (2) Sanitário sem descarga
(3) Casinha/fossa negra (4) Não tem

97. Na sua casa têm rede de esgoto? (1) Sim (2) Não — esgoto __

98. Na casa da senhora tem: *(Confirmar se funciona)*

Rádio?	(1) Sim	(2) Não	radio __
Televisão?	(1) Sim	(2) Não	tv __
Geladeira?	(1) Sim	(2) Não	gela __
Filtro?	(1) Sim	(2) Não	filtro __
Fogão a gás?	(1) Sim	(2) Não	fogas __
Fogão a lenha?	(1) Sim	(2) Não	fole __

99. No mês passado quanto ganharam as pessoas desta casa que trabalharam?
Pessoa 1: R$ __ __ __ __, __ __ *(Iniciar pela pessoa de maior renda)* — r1 __ __ __ __ __ __ __
Pessoa 2: R$ __ __ __ __, __ __ — r2 __ __ __ __ __ __ __
Pessoa 3: R$ __ __ __ __, __ __ — r3 __ __ __ __ __ __ __
Pessoa 4: R$ __ __ __ __, __ __ — r4 __ __ __ __ __ __ __
(Se houver mais de 4 pessoas, somar na renda da pessoa 4)

100. Vocês tem alguma outra fonte de renda como pensão, aluguel?
(0) Não ( ) Sim, quanto recebeu no mês passado? R$ __ __ __ __, __ __ — ou __ __ __ __ __ __

101. A senhora tem religião? (1) Sim **(2) Não [→ 131]** — relig __

102. SE SIM: Qual? (1) Católica (2) Protestante (3) Espírita — qrelig __
(4) Afro-Brasileira ( ) Outra: _____

aidpime __ __
aidpiag __ __

103. Qual posto de saúde a senhora leva o seu(s) filho(s) para consultar na maioria das vezes? _____ — psf __ pacs __

104. Quantas crianças menores de cinco anos tem na sua casa? ___ crianças — ncri __

105. NÚMERO DO QUESTIONÁRIO DA CRIANÇA:
Criança 1: __ __ __ __ *(iniciar pelo mais velho; preencha com '00' onde não houver criança)* — idcr1 __ __ __ __
Criança 2: __ __ __ __ — idcr2 __ __ __ __
Criança 3: __ __ __ __ — idcr3 __ __ __ __
Criança 4: __ __ __ __ — idcr4 __ __ __ __
Criança 5: __ __ __ __ — idcr5 __ __ __ __

106. Data da entrevista: __ __/__ __/2000 — df __ __/__ __/00

107. Entrevistador(a): _____ Nº: __ __ — entref __ __

Organização Mundial da Saúde Escola de Higiene e Medicina Tropical da Universidade de Londres Universidade Federal do Rio Grande Secretaria de Estado da Saúde de Sergipe Rede Brasileira de Informação e Documentação sobre a Infância e Adolescência	Número do questionário __ __ __ __

QUESTIONÁRIO SOBRE A CRIANÇA

idc __ __ __ __ __ __ __ __ __ __ __ __

1. IDENTIFICAÇÃO: __ __ __ __ __ __ __ __ __ __ __ __

2. PROGRAMA: (1) PACS (2) PSF (3) Pastoral (4) PACS + Pastoral (5) PSF + Pastoral — prog__

3. MUNICIPÍO: __ __ — mun __ __
SETOR CENSITÁRIO: __ __ __ — setor __ __ __

4. NÚMERO DO DOMICÍLIO: __ __ — ndocr __ __
NÚMERO DA MÃE: __ — nmãe __

NÚMERO DA CRIANÇA : ___ — ncri __

5. ÁREA: (1) Urbana (2) Rural — área __

6. Qual o nome da criança? _____
(*Onde constar <CRIANÇA> substituir pelo nome*)

7. Qual a data de nascimento de <CRIANÇA>? __ __/__ __/__ __ — dn__ __/__ __/__ __

8. SEXO: (1) Masculino (2) Feminino — sexo __

9. COR DA PELE: (1) Branca (2) Morena (3) Preta (4) Amarela — corcri __

10. O que a senhora é de <CRIANÇA>? — maebio __
(1) Mãe biológica (2) Mãe adotiva (3) Avó
(4) Irmã ( ) Outra: _____

11. SE MÃE BIOLÓGICA: Quantos filhos a senhora (MÃE NATURAL) teve antes de <CRIANÇA> nascer? Todos nasceram vivos?
__ __ nascidos vivos — navivo __ __
__ __ nascidos mortos (*maior de 28 semanas de gestação ou 1.000 g*) — namort __ __

12. Qual a data de nascimento do irmão que nasceu antes de <CRIANÇA>?
__ __/__ __/__ __ (*Preencher 11/11/11 se filho único, ou primeiro filho*) — dni__ __/__ __/__ __

13. A Sra. fez alguma consulta de pré-natal durante a gravidez de <CRIANÇA>? — prenat __
(1) Sim **(2) Não [➔18]** **(3) Não sabe [➔18]**

14. SE SIM: Em que mês da gravidez de <CRIANÇA> a senhora começou as consultas de pré-natal? __ __ mês (*99=Não sabe; 88=Não se aplica)* — mespre __ __

15. Quantas consultas de pré-natal a senhora fez durante a gravidez de <CRIANÇA>? __ __ consultas (*99=Não sabe; 88=Não se aplica)* — conspre __ __

16. Quais exames a senhora fez durante a gravidez de <CRIANÇA>?

Exame de urina	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achuri __
Exame de fezes	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achafe __
Exame de sangue	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achasa __
Exame para câncer no útero	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achaca __
Teste para AIDS (HIV)	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achiv __
Teste para Rubéola	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	acharu __
Teste para Sífilis	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achasi __
Teste para Hepatite	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achepa __
Fazer ultrassom do nenê	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achasom __
Outro1:_____				(0) Não	achou1 __
Outro2:_____				(0) Não	achou2 __

17. Além desses exames, o que mais o médico fez para a senhora durante a gravidez de <CRIANÇA>?

Medir a pressão	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achapre __
Medir a barriga	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achabar __
Fazer exame por baixo	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achabai __
Examinar o seio	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achasei __
Escutar o coração do nenê	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achacor __
Ensinar a dar de mamar no peito	(1) S, esp	(2) S, ind.	(3) Não	(4) NSb	achama __
Conversar sobre tipo de parto	(1) S, esp.	(2) S, ind.	(3) Não	(4) NSb	achapar __
Outro1: _____				(0) Não	ouacha1 __
Outro2:_____				(0) Não	ouacha2 __

18. A Senhora tomou alguma dose de vacina contra o tétano durante a gravidez de <CRIANÇA>? (0) Não, nenhuma ( ) Sim, quantas? __ doses (7) Sim, apenas o reforço (8) Não, já era imunizada — antitet __

19. Onde nasceu <CRIANÇA>? (1) Hospital/Maternidade (2) Casa de parto (3) Em casa (4) Outro: _____ — local __

20. Como foi o parto? (1) Normal (2) Fórcipe (3) Cesariana — parto __

21. Quanto <CRIANÇA> pesou ao nascer? __ __ __ __ gramas — pn __ __ __ __

22. O PESO AO NASCER FOI CONFIRMADO OU INFORMADO? (1) Confirmado (2) Informado — pesconf __

23. Depois que <CRIANÇA> nasceu, a senhora alguma vez se consultou com médico antes de <CRIANÇA> completar dois meses? (1) Sim (2) **Não [➔25]** (3) **Não sabe[➔25]** — puerp __

24. SE CONSULTOU: Qual foi o motivo? (1) Fazer revisão (2) Febre (3) Corrimento (4) Problema nos seios ( ) Outro:_____ — motpu __

25. <CRIANÇA> foi internada em hospital desde <12 MESES ATRÁS> pra cá? **(0) Não [➔27]** ( ) Sim, quantas vezes: __ vezes — nhosp __

26. SE FOI HOSPITALIZADA: A senhora poderia me dizer por que motivo(s) <CRIANÇA> foi internada?

Diarréia	(0) Não	( ) Sim, __ vezes	hospdia __
IRA/Pneumonia	(0) Não	( ) Sim, __ vezes	hospira __
Sarampo	(0) Não	( ) Sim, __ vezes	hospsar __
Desnutrição/Anemia	(0) Não	( ) Sim, __ vezes	hospdes __
Acidentes	(0) Não	( ) Sim, __ vezes	hospaci __
Outra1: _____		(0) Não	hospou1 __
Outra2: _____		(0) Não	hospou2 __

27. <CRIANÇA> está ou esteve doente ou com algum problema de saúde desde ontem a esta hora? (1) Sim **(2) Não[➔31]** **(3) Não sabe[➔31]** cridoeh __

28. SE SIM: Que problema/doença <CRIANÇA> tem ou teve?

Dor de ouvido	(1) Sim	(2) Não	(3) Não sabe	dorovh __
Perda de apetite	(1) Sim	(2) Não	(3) Não sabe	apetih __
Febre	(1) Sim	(2) Não	(3) Não sabe	febreh __
Tosse	(1) Sim	(2) Não	(3) Não sabe	tosseh __
Nariz entupido/escorrendo	(1) Sim	(2) Não	(3) Não sabe	narizh __
Diarréia/Disenteria*	(1) Sim	(2) Não	(3) Não sabe	diarh __
Dor de garganta	(1) Sim	(2) Não	(3) Não sabe	gargh __
Feridas pelo corpo	(1) Sim	(2) Não	(3) Não sabe	feriah __
Respiração rápida**	(1) Sim	(2) Não	(3) Não sabe	resrah __
Problema nos olhos	(1) Sim	(2) Não	(3) Não sabe	olhoh __
Dificuldade respiratória**	(1) Sim	(2) Não	(3) Não sabe	difresh __
Manchas por todo o corpo	(1) Sim	(2) Não	(3) Não sabe	macoh __
Convulsão	(1) Sim	(2) Não	(3) Não sabe	convuh __
Dorme o tempo todo	(1) Sim	(2) Não	(3) Não sabe	dormeh __
Vomita tudo o que come	(1) Sim	(2) Não	(3) Não sabe	vomih __
Dificuldade ou impossibilidade para tomar líquido/amamentar	(1) Sim	(2) Não	(3) Não sabe	difliqh __
Outra queixa1: _____			(0) Não	ouq1h __
Outra queixa2: _____			(0) Não	ouq2h __

29. *SE ESTÁ COM DIARRÉIA:

Quantas vezes <CRIANÇA> fez cocô mole desde ontem? __ __ vezes			codi24 __ __
<CRIANÇA> está vomitando?	(1) Sim	(2) Não	vodi24 __
<CRIANÇA> tem muita sede?	(1) Sim	(2) Não	sedi24 __
<CRIANÇA> está se alimentando bem?	(1) Sim	(2) Não	alibe24 __
<CRIANÇA> está tomando líquido normalmente	(1) Sim	(2) Não	liqui24 __

30. **SE ESTÁ C/ RESPIRAÇÃO RÁPIDA/DIFICULDADE RESPIRATÓRIA: peito24 __

<CRIANÇA> está com problema no pulmão ou está com o nariz entupido?

(1) Com problema no pulmão (ofegante, falta de folego, falta de ar, tiragem)

(2) Com problema no nariz

(3) Com problema no pulmão e no nariz

( ) Outro: _____

31. <CRIANÇA> esteve doente ou com algum problema de saúde nos últimos 15 dias desde <DIA DA SEMANA> de duas semanas atrás? (NÃO INCLUIR A DOENÇA DAS ULTIMAS 24 HORAS REFERIDA NAS PERGUNTAS 27-30) doe15 __

(1) Sim **(2) Não[➔59]** **(3) Não sabe[➔59]**

32. SE SIM: Que problema ou doença <CRIANÇA> teve?

Dor de ouvido	(1) Sim	(2) Não	(3) Não sabe	dorou15 __
Perda de apetite	(1) Sim	(2) Não	(3) Não sabe	perda15 __
Febre	(1) Sim	(2) Não	(3) Não sabe	febre15 __
Tosse	(1) Sim	(2) Não	(3) Não sabe	tosse15 __
Nariz entupido/escorrendo	(1) Sim	(2) Não	(3) Não sabe	nariz15 __
Diarréia/Disenteria*	(1) Sim	(2) Não	(3) Não sabe	diar15 __
Dor de garganta	(1) Sim	(2) Não	(3) Não sabe	dorga15 __
Respiração rápida**	(1) Sim	(2) Não	(3) Não sabe	resra15 __
Feridas pelo corpo	(1) Sim	(2) Não	(3) Não sabe	ferco15 __
Problema nos olhos	(1) Sim	(2) Não	(3) Não sabe	polho15 __
Dificuldade respiratória**	(1) Sim	(2) Não	(3) Não sabe	difre15 __
Manchas por todo o corpo	(1) Sim	(2) Não	(3) Não sabe	manco15 __
Convulsão	(1) Sim	(2) Não	(3) Não sabe	convu15 __
Dorme o tempo todo	(1) Sim	(2) Não	(3) Não sabe	dorme15 __
Vomita tudo o que come	(1) Sim	(2) Não	(3) Não sabe	vomi15 __
Dificuldade/impossibilidade para tomar líquido/mamar no peito	(1) Sim	(2) Não	(3) Não sabe	difli15 __
Acidente	(1) Sim	(2) Não	(3) Não sabe	acid15 __
Outra queixa1: _____			(0) Não	ouq115 __
Outra queixa2: _____			(0) Não	ouq215 __

33. * Neste período em que <CRIANÇA> estava com diarréia:

Quantas vezes <CRIANÇA> fez cocô mole por dia? __ __ vezes			codi15 __ __
<CRIANÇA> estava vomitando?	(1) Sim	(2) Não	vodi15 __
<CRIANÇA> tinha muita sede?	(1) Sim	(2) Não	sedi15 __
<CRIANÇA> estava se alimentando bem?	(1) Sim	(2) Não	alibe15 __
<CRIANÇA> estava tomando líquido normalmente	(1) Sim	(2) Não	liqui15 __

34. A senhora deu algo de beber para tratar a diarréia de <CRIANÇA>?
(1) Sim **(2) Não [➔37]** dialiq __

35. SE DEU ALGO DE BEBER: O que a senhora deu para a criança beber?

Soro de pacote	(1) Sim	(2) Não	(8) NSA	pacote __
Soro caseiro, colher-medida	(1) Sim	(2) Não	(8) NSA	colher __
Soro caseiro, punhado-pitada	(1) Sim	(2) Não	(8) NSA	pupit __
Outra solução caseira sal/açúcar	(1) Sim	(2) Não	(8) NSA	solsal __
Soro comprado na farmácia	(1) Sim	(2) Não	(8) NSA	sorfar __
Água	(1) Sim	(2) Não	(8) NSA	agua __
Água de arroz	(1) Sim	(2) Não	(8) NSA	arroz __
Chás	(1) Sim	(2) Não	(8) NSA	chá __
Outros:_____		(0) Não	(8) NSA	outros __

36. SE USOU SORO: Quem receitou o soro para <CRIANÇA>? receiso __
(1) Médico/Enfermeira (2) Outra da equipe de saúde
(3) Agente comunitário (4) Líder da pastoral
(5) Amiga/Vizinha (6) Usou por conta própria
( ) Outro: _____

37. **SE TINHA RESPIRAÇÃO RÁPIDA/DIFICULDADE RESPIRATÓRIA:
Quando estava respirando rapidamente ou com dificuldade para respirar <CRIANÇA> tinha problema no pulmão ou estava com nariz entupido?
(1) Com problema no pulmão (ofegante, falta de folego, falta de ar)
(2) Com problema no nariz
(3) Com problema no nariz e no pulmão
( ) Outro: _____

peito15 __

38. Nestas duas últimas semanas em que <CRIANÇA> estava com dificuldade para respirar ele estava com:

Febre	(0) Não	(1) Sim, verificada com a mão	resp15 __
		(2) Sim, aferida com termômetro	febre15 __
Tosse		(1) Sim (2) Não	tosse15 __
Rouquidão/catarro		(1) Sim (2) Não	rouq15 __
Puxa ou estava puxando		(1) Sim (2) Não	puxa15 __

39. Nesses dias em que <CRIANÇA> estava doente, a senhora deu algum remédio a ele por conta própria? (1) Sim (2) Não

auto15 __

40. A senhora ou alguma outra pessoa conseguiu ajuda fora de casa para tratar esta doença de <CRIANÇA>? (1) Sim **(2) Não [➔59]**

ajuda15 __

41. SE SIM: Para onde <CRIANÇA> foi levada(o) primeiro? E depois?
( ) Farmácia ( ) Posto de saúde
( ) Atendimento 24 h ( ) Pronto socorro/Hospital
( ) Clínica/Convênio ( ) Consultório particular
( ) Outro: _____

lefa15 __
leps15 __
le2415 __
leho15 __
lecli15 __
lepar15 __
leout15 __

42. Quem levou <CRIANÇA> para consultar neste local? (1) Pai (2) Mãe
(3) Avô/Avó ( ) Outra pessoa:_____

quele15 __

43. Em qual desses locais <CRIANÇA> foi atendida(o)? _____
(anotar apenas o primeiro)

atend __

44. Qual é a distância da sua casa até este local onde <CRIANÇA> foi atendido?
__ __ km

dis15 __ __

45. Este <LOCAL> onde <CRIANÇA> foi atendida(o) é o serviço de saúde mais próximo da sua casa? (1) Sim (2) Não (3) Não sabe

maisp15 __

46. SE NÃO: Porque <CRIANÇA> não foi levada(o) para o serviço de saúde mais próximo da sua casa? _____
_____

pqnp15 __

47. Como <CRIANÇA> foi levada(o) até este <LOCAL>? A pé? De carro?
(1) A pé (2) De carro ( ) Outro: _____

comol15 __

48. Quanto tempo gastou (ou gastaria) da sua casa até este <LOCAL> de?
Carro: __ __ horas __ __ minutos A pé: __ __ horas __ __ minutos

tegah15 __ __
tegam15 __ __
teph15 __ __
tepm15 __ __

49. Quanto tempo demorou para <CRIANÇA> ser atendida(o)?
__ horas __ __ minutos *(7, 77, se imediatamente atendido; 8, 88,se esperou + de 1 dia)*

demoh15 __
demom15 __ __

50. A senhora teve de pagar por esta consulta? Pagco15 _ _ _ _ _ _
(0) Não ( ) Sim, quanto? _ _ _, _ _

51. Quem atendeu <CRIANÇA> neste <LOCAL>? qcons15 _
(1) Médico (2) Enfermeira
(3) Agente de saúde/Líder da Pastoral (4) Balconista de farmácia
(5) Rezadeira ( ) Outro: _____

52. Esta pessoa que atendeu <CRIANÇA> receitou algum remédio a ele(a)? rece15 _
(1) Sim **(2) Não[➔59]**

53. SE USOU ALGUM TIPO DE REMÉDIO: A senhora teve de comprar este(s) remédio(s)? (1) Sim, comprei todos (2) Sim, comprei e ganhei (3) Não, ganhei todos (4) Não comprei o remédio ( ) Outro:_____ comre15 _

54. SE GANHOU ALGUM: Onde a senhora ganhou? garem15 _
(1) Posto de saúde (2) Prefeitura ( ) Outro:_____

55. SE GANHOU DE 'OUTROS': A senhora foi na prefeitura ou no posto de saúde para ver se conseguia de graça esse remédio? foips15 _
(0) Não foi nem ao posto de saúde nem na prefeitura para ver se conseguia
(1) Fui, mas estava em falta
(2) Fui, mas não tinha em quantidade suficiente
(3) Fui, mas não fui atendida ( ) Outro: _____

56. SE COMPROU: Quanto gastou com esses remédios? R$ _ _ _, _ _ cusre15 _ _ _ _ _ _

57. SE SIM: Algum desses remédios <CRIANÇA> teve de tomar durante sete dias ou mais ? (1) Sim (2) Não (3) Não sabe atb15 _

58. SE <CRIANÇA> FOI ATENDIDA POR MÉDICO OU ENFERMEIRA: O <ENFERMEIRO/MÉDICO> que atendeu <CRIANÇA> foi visitar ele em casa depois? (1) Sim **(2) Não [➔59]** **(3) Não sabe [➔59]** visca15 _

59. A senhora ou alguém levou <CRIANÇA> para consultar com médico ou enfermeira desde <ÉPOCA DE TRÊS MESES ATRÁS> pra cá? (NÃO INCLUIR AS DOENÇAS CITADAS NOS PERÍODOS ANTERIORES)
(0) Não **[➔61]** ( ) Sim, com médico, quantas vezes: _ vezes cons3m _
( ) Sim, com enfermeira, quantas vezes: _ vezes comed3 _
coenf3 _

60. SE CONSULTOU: A senhora poderia me dizer por que motivo(s) <CRIANÇA> precisou consultar?

Diarréia	(0) Não	( ) Sim, _ vezes	codia3m _
IRABaixa/Pneumonia:	(0) Não	( ) Sim, _ vezes	copnm3m _
Desnutrição/Anemia	(0) Não	( ) Sim, _ vezes	codes3m _
Doença de pele	(0) Não	( ) Sim, _ vezes	copel3m _
Acidentes	(0) Não	( ) Sim, _ vezes	coaci3m _
Puericultura	(0) Não	( ) Sim, _ vezes	copue3m _
Rotina	(0) Não	( ) Sim, _ vezes	rot3m _
IRAlta (Gripe/otite/amigdalite/sinusite)	(0) Não	( ) Sim, _ vezes	coira3m _
Outra:_____		(0) Não	cout23m _

☛AS PERG. 61-65 SÓ DEVEM SER FEITAS PARA MAIORES DE 6 MESES

61. Isto aqui é uma capsula de vitamina A que para ser dada tem que ser espremida dentro da boca da criança. A senhora saberia me dizer se <CRIANÇA> está recebendo este tipo de vitamina? vita __
(1) Sim, registrado na carteira (2) Sim, não registrado
(3) Não, nunca recebeu [➔66] **(4) Não Sabe[➔66]**

62. SE SIM: Há quanto tempo <CRIANÇA> começou a receber este tipo de vitamina? __ ano(s) __ __ mês(es) temvita __ temvitm __ __

63. Quantas doses <CRIANÇA> já recebeu? confvit __ infvit __
__ doses, confirmadas na carteira __ doses, informadas pela mãe
(Só perguntar à mãe se o cartão não for visto ou se não houver nenhuma dose anotada)

64. Faz quanto tempo que <CRIANÇA> recebeu este tipo de vitamina pela última vez? __ ano(s) __ __ mês(es) *(00=se menos de 1 mês)* dorevic __ dorevim __ __

65. ESTA INFORMAÇÃO FOI: (1) CONFIRMADA PELA CARTEIRA ultdovia __
(2) INFORMADA PELA MAE uldovim __

66. Com que idade <CRIANÇA> começou a receber?

Água	__ __ meses	idagua __ __
Chá	__ __ meses	idchá __ __
Suco de fruta	__ __ meses	idsuco __ __
Leite em pó	__ __ meses	idleipo __ __
Leite de vaca/caixinha/saquinho	__ __ meses	idleiva __ __
Outro leite	__ __ meses	idoulei __ __
Papa de verduras/legumes	__ __ meses	idpapa __ __
Angu (farinha com água)	__ __ meses	idangu __ __
Gogó (farinha/maisena/neston/mucilon)	__ __ meses	idgogo __ __
Sopinhas	__ __ meses	idsopi __ __
Fruta amassada	__ __ meses	idfrut __ __
Arroz com feijão	__ __ meses	idarfei __ __
Carne	__ __ meses	idcarne __ __

(00=menos de 1 mês; 97 = nunca recebeu; 98 = nunca recebeu regularmente

67. Desde ontem a esta hora, <CRIANÇA> recebeu?

Vitaminas ou algum outro remédio?	(1) Sim	(2) Não	(3) IGN
Água pura?	(1) Sim	(2) Não	(3) IGN
Água com açúcar, suco de fruta, ou chás?	(1) Sim	(2) Não	(3) IGN
Soro oral?	(1) Sim	(2) Não	(3) IGN
Leite em pó, leite de vaca/cabra/saquinho?	(1) Sim	(2) Não	(3) IGN
Algum outro líquido: Qual? _____	(1) Sim	(2) Não	(3) IGN
Alimentos que tivesse de mastigar?*	(1) Sim	(2) Não	(3) IGN
Leite do peito	(1) Sim	(2) Não	(3) IGN
SE RECEBEU LEITO DO PEITO:			
Foi somente leite do peito?	(1) Sim	(2) Não	(3) IGN

vit24 __ ag24 __ suc24 __ tro24 __ lei24 __ liq24 __ sol24 __ leima 24 __ qcoso24 __

* SE INGERIU ALIMENTOS SÓLIDOS/SEMI-SÓLIDOS OU AMASSADO

68. Desde ontem a esta hora, quantas vezes <Criança> comeu esse tipo de alimento? __ __ vezes. ingesol __ __

69. Desde ontem a esta hora, <CRIANÇA> tomou alguma coisa usando mamadeira? mama24 __
(1) Sim (2) Não (3) Não sabe

70. <CRIANÇA> mama no peito? **(1) Sim [➔72]** (2) Não mamapei __

71. SE JÁ FOI DESMAMADA: Que idade tinha <CRIANÇA> quando deixou de mamar?
__ anos (8=ainda mama; 9 = não sabe) desanos __
__ __ meses (88=ainda mama; 99 = não sabe) desmes __ __
__ __ dias (88= ainda mama; 99 = não sabe desdias __ __

72. <CRIANÇA> foi pesada desde <DIA DE TRÊS MÊSES ATRÁS> pra cá? peso3m __
(1) Registrado no cartão (2) Sim, não registrado
(3) Registro não confirmado (4) Não pesado

73. <CRIANÇA> foi pesada nas últimas quatro semanas desde <DIA DE UM MÊS ATRÀS> pra cá? **(0) Não [➔76]** ( ) Sim, quantas vezes? ___ vezes peso1m __

74. SE SIM: Onde <CRIANÇA> foi pesada?

Na sua própria casa	(1) Sim	(2) Não	pecamae __
No Posto de Saúde	(1) Sim	(2) Não	pecaglp __
Outro: _____	(0) Não	( ) Sim	peps __
			peout __

75. Quem pesou <CRIANÇA>?

Agente comunitário de saúde	(1) Sim	(2) Não	agpesou __
Líder da Pastoral	(1) Sim	(2) Não	lppesou __
Médico/Enfermeira	(1) Sim	(2) Não	mepesou __
Outro: _____	(0) Não	( ) Sim	oupesou __

76. <CRIANÇA> tem cartão da criança? cartao __
(1) Sim, vista (2) Sim, não vista
(3) Tinha mas perdeu (4) Não, nunca teve

77. Onde a senhora conseguiu este cartão? (1) Posto Saude (2) maternidade ( ) Outro ondecar __

78. Quem deu este cartão para o seu filho? qdeucar __
(1) Agente de saúde (2) Líder da Pastoral (3) Enfermeira (5) Outro

79. Há quanto tempo a senhora ganhou este cartão? __ ano __ __ meses temcara __
temcarm __ __

80. Quantas doses de vacina <CRIANÇA> já recebeu?

	Cartão	Mãe	Cicatriz	
Sabin/Antipólio (gotas na boca)	__	__		sabin __ __
Triplice/DPT (Injeção na nádega	__	__		dpt __ __
Contra o sarampo (braço)	__	__		sara __ __
BCG (Cicatriz no braço)	__		__	bcg __ __
Hepatite (injeção na coxa)	__	__		hep __ __
Haemófilos	__	__		hae __ __

81. SE O CARTÃO FOI VISTO: <CRIANÇA> tem mais algum cartão igual a esse aqui? (0) Não ( ) Sim, quantos: ___ oucart __

82. Número do questionário da mãe: __ __ __ __ qstma __ __ __ __

83. Data da entrevista: __ __/__ __/2000 dac __ __/__ __/00

84. Entrevistador(a): _____ N.° __ __ entrec __ __

Organização Mundial da Saúde Escola de Higiene e Medicina Tropical da Universidade de Londres Universidade Federal do Rio Grande Secretaria de Estado da Saúde de Sergipe Rede Brasileira de Informação e Documentação sobre a Infância e Adolescência	Número seqüencial do questionário ___ ___ ___

QUESTIONÁRIO PARA O AGENTE COMUNITÁRIO DE SAÚDE

1. IDENTIFICAÇÃO: _ _ _ _ _ _ _ _ | idal _ _ _ _ _ _ _ _

4. PROGRAMA: (1) PACS (2) PSF (3) PACS/Pastoral (4) PSF/Pastoral | progal _

5. MUNICÍPIO: _____ _ _ No. DO PS/COMUNIDADE: _ _ | munial _ _

6. NOME DO POSTO DE SAÚDE/COMUNIDADE: _____ | npcomal _ _

7. NÚMERO DO AGENTE DE SAÚDE: _ _ | nal _ _

6. ÁREA: (1) Urbana (2) Rural | areal _

11. Qual o seu nome completo? _____

12. COR DA PELE: (1) Branca (2) Morena (3) Preta (4) Amarela | coral _

13. SEXO: (1) Masculino (2) Feminino | sexal _

14. Quantos anos você tem? _ _ anos *(Confirmar se já completou)* | idal _ _

15. Você sabe ler e escrever? (1) Sim (2) Não (3) Só assina | leral _

16. Até que série você estudou na escola? _ ª do _ º grau *(Confirmar se já completou)* | serial _
graual _

13. Você é: (1) Solteira (2) Casada/Amaziada (3) Desquitada (4) Viúva | civial _

14. Você tem algum filho? (00) Não ( ) Sim, quantos: _ _ filhos | filhal _ _

15. Quantas pessoas moram na sua casa? _ _ pessoas *(incluir a pessoa q esta sendo entrevistada)* | nmoral _ _

16. Você é: (1) ACS do PACS **[17, 18, 19 →21]** (3) ACS do PSF **[17, 18, 19 →21]**
(2) Líder da Pastoral [→103] (4) ACS e LP (5) LP q não visita **[103, 104, 143-7]** | voceal _

SE É AGENTE DE SAÚDE: | sabag _

17. Como você ficou sabendo que poderia trabalhar como agente de saúde?
(1) Através de anúncio no jornal/rádio/TV (2) Igreja
(3) Pelo pessoal do serviço de saúde (4) Através de uma amiga/vizinha
(5) Através de um outro ACS ( ) Outro: _____

18. Quando você fez a seleção para agente de saúde, quantos candidatos tinham na primeira etapa? _ _ _ _ candidatos | ncag _ _ _ _

19. E quantas vagas tinham? _ _ _ vagas | vagag _ _ _

20. SE DO PACS: Há quanto tempo você é agente de saúde do PACS?
_ ano(s) _ _ meses **[→26]** | tempaga _
tempagm _ _

21. SE DO PSF: Você entrou direto no PSF ou foi primeiro agente de saúde do PACS?
(1) Entrei no PACS e passei para o PSF **(2) Entrei direto no PSF [➔23 e 26]**

entrag __

22. SE ENTROU PRIMEIRO NO PACS: Quanto tempo você trabalhou como agente de saúde no PACS? __ ano(s) __ __meses

tentraga __
tentragm __ __

23. Há quanto tempo você trabalha como agente de saúde no PSF? __ ano(s) __ __ meses

tepsfaga __
tepsfagm __ __

24. Você gostou mais de ser agente de saúde no PACS ou no PSF?
(1) PACS (2) PSF **(3) Tanto faz [➔26]**

gostag __

25 Porquê? _____

_____

pqpacs __ __
pqpsf __ __

26. Você recebeu algum treinamento ou curso para ser agente de saúde?
(00) Não [➔34] ( ) Sim, durante quanto tempo: __ __ dias úteis *(8 horas/dia)*

retrag __ __

27. **Depois desse primeiro treinamento você teve algum outro treinamento ou curso que demorasse pelo menos um dia? (1) Sim** (2) Não [➔33] (3) Não lembra [➔33]

outrag __

28. SE SIM: Os assuntos ensinados neste último curso/treinamento eram os mesmos do primeiro? (1) Não, eram assuntos novos (2) Sim, só assuntos velhos
(3) Sim, assuntos novos e velhos (4) Não lembra

assag __

ultraga __
ultragm __ __

29. Quanto tempo faz que este último curso/treinamento foi dado? __ ano(s) __ __ meses

30. Quanto tempo durou este último curso/treinamento? __ __ dias

duragd __ __

31. Este curso foi dado no mesmo município onde você trabalha? (1) Sim (2) Não

ontreag __

32. Quem deu esse último curso/treinamento?
(1) Médico (2) Enfermeira (3) Médico + Enfermeira ( ) Outros: _____

deutreag __

33. Você já conhecia a área onde está trabalhando hoje como agente de saúde?
(1) Sim (2) Não (3) Não lembra

conharag __

34. Você está morando na mesma área em que trabalha? (1) Sim **(2) Não[➔36]**

morarag __

35. SE SIM: Há quanto tempo ? __ __ ano(s) __ __ mês(es)

temoraga __ __
temoragm __ __

36. De quanto em quanto tempo você visita as famílias?
__ vez por semana __ vez por mês __ vez por ano *('0' para os não referidos)*

teviags __
teviagm __
teviaga __

37. O que você faz como agente de saúde?

Pergunta se tem ou teve alguém doente na casa desde a última visita?	(1) S, esp. (2) S, ind. (3) Não	pedoeag __
Marca/Apraza consulta no posto de saúde?	(1) S, esp. (2) S, ind. (3) Não	marcag __
Ensina a preparar o soro caseiro?	(1) S, esp. (2) S, ind. (3) Não	sorag __
Distribui colher-medida de plástico?	(1) S, esp. (2) S, ind. (3) Não	corag __
Incentiva fazer exame de lâmina no posto de saúde?	(1) S, esp. (2) S, ind. (3) Não	cacag __
Encaminha gestantes ao pré-natal?	(1) S, esp. (2) S, ind. (3) Não	encagag __
Pesa todo mês crianças menores de 2 anos?	(1) S, esp. (2) S, ind. (3) Não	pesag __
Ensina sobre alimentação alternativa/lambedor?	(1) S, esp. (2) S, ind. (3) Não	alalag __
Orienta sobre como dar de mamar no peito?	(1) S, esp. (2) S, ind. (3) Não	mamag __
Ensina/recomenda vacinar as crianças da casa?	(1) S, esp. (2) S, ind. (3) Não	vacag __

38. O que mais você gostaria de fazer como agente de saúde?

Curativo	(1) Sim	(2) Não	curag __
Medir a pressão	(1) Sim	(2) Não	pressag __
Aplicar injeção	(1) Sim	(2) Não	injeag __
Distribuir medicamentos	(1) Sim	(2) Não	dimedag __
Marcar (mais) consultas médicas	(1) Sim	(2) Não	consag __
Distribuir cesta básica	(1) Sim	(2) Não	cebasag __
Outro: _____		(0) Não	oug1ag __
			oug2ag __

39. Você se acha capaz de dizer se uma criança:

Têm risco de ter canseira/cansaço?	(1) Sim	(2) Não	dipnmag __
Com diarréia precisa ser levada ao médico?	(1) Sim	(2) Não	diarag __
Está crescendo bem?	(1) Sim	(2) Não	dicreag __
Está aprendendo bem as coisas?	(1) Sim	(2) Não	diapreag __
Precisa tomar remédio contra febre?	(1) Sim	(2) Não	diremag __

40. Na equipe que você trabalha têm:

Médico	(1) Sim	(2) Não	medico __
Enfermeira	(1) Sim	(2) Não	enferm __
Assistente Social	(1) Sim	(2) Não	asocial __
Dentista	(1) Sim	(2) Não	dentist __

41. Quantas famílias você acompanhou no mês passado? __ __ __ famílias — nfamag __ __ __

42. Quantas crianças menores de 2 anos vc acompanhou no mês passado? __ __ crianças — ncriag __ __

43. E quantas gestantes você acompanhou no mês passado? __ __ gestantes — ngeag __ __

44. E quantos hipertensos você acompanhou no mês passado? __ __ hipertensos — nhiperag __ __

45. E quantos diabéticos você acompanhou no mês passado? __ __ diabéticos — ndiabag __ __

46. E quantos pacientes com Mal de Hansen? __ __ hansênicos — hansen __ __
E quantos pacientes com tuberculose? __ __ tuberculosos — tb __ __

47. No mês passado, alguém do posto de saúde acompanhou você durante estas visitas? — psacag __
(1) Sim **(2) Não [➔50]**

48. SE SIM: Quem acompanhou?

Médico	(1) Sim, esp.	(2) Sim, solicitando	(3) Não	meacag __
Enfermeira	(1) Sim, esp.	(2) Sim, solicitando	(3) Não	enfacag __
Assistente social	(1) Sim, esp.	(2) Sim, solicitando	(3) Não	asacag __
Dentista (1) Aux. Enf. (2)	(1) Sim, esp.	(2) Sim, solicitando	(3) Não	outacag __ __

49. Em quantas visitas eles acompanharam você no mês passado? __ __ visitas — nviacag __ __

50. Para que o médico, a enfermeira ou a assistente social visitem uma família é preciso que tenha alguém doente na casa? **(7, nunca foram)**

Médico	(0) Não	(1) Sim, sempre	(2) Sim, as vezes	doemeag __
Enfermeira	(0) Não	(1) Sim, sempre	(2) Sim, as vezes	doenfag __
Assistente social	(0) Não	(1) Sim, sempre	(2) Sim, as vezes	assisag __
Dentista (1) Aux. Enf. (2)	(0) Não	(1) Sim, sempre	(2) Sim, as vezes	ouviag __ __

51. Quando alguém deles (med., enf., assist., etc) fazem estas visitas, você vai junto? — agacag __
(1) Sim, sempre (2) Sim, as vezes **(3) Não, nunca [➔57]**

52. SE SIM: O que você faz durante estas visitas? facag __
(1) Nada, fica só olhando (2) Ajuda a contar o problema
( ) Outro: _____

53. Quem da equipe de saúde ajuda, orienta você nas visitas que você faz sozinha?

Médico	(1) Sim, sempre	(2) Sim, as vezes	(3) Não,nunca	meoriag __
Enfermeira	(1) Sim, sempre	(2) Sim, as vezes	(3) Não,nunca	enforiag __
Assistente social	(1) Sim, sempre	(2) Sim, as vezes	(3) Não,nunca	outoriag __
Dentista (1) Aux. Enf. (2)	(1) Sim, sempre	(2) Sim, as vezes	(3) Não,nunca	ouajag __ __

[Se NÃO em todas, → 57]

54. Que tipo de ajuda/apoio eles (med., enf., assist., etc) dão para você?

Reúnem-se com vc e querem saber o que fez	(0) Não (1) S, sempre (2) S, as vezes	reuneag __
Discutem os casos que você traz	(0) Não (1) S, sempre (2) S, as vezes	discuag __
Ajudam vc solucionar problemas que encontra	(0) Não (1) S, sempre (2) S, as vezes	soproag __
Mostram os pontos que vc precisa melhorar	(0) Não (1) S, sempre (2) S, as vezes	mospoag __
Outro1: _____	(0) Não	ou1ajag __
Outro2: _____	(0) Não	ou2ajag __

55. SE RECEBE ALGUM TIPO DE APOIO: Isto é feito em grupo ou somente com você? (1) Em grupo (2) Individualmente (3) Em grupo e individualmente soapag __

56. Você encaminha pessoas doentes para consultar no posto de saúde? encdoeag __
(1) Sim, sempre que precisa (2) Sim, quando tem ficha disponível
(3) Não, nunca [→68]

57. SE SIM: Faz quanto tempo que você encaminhou alguém pela última vez para consultar? __ ano(s) __ __ mês(es) __ __ dia(s) ultenaga __ ulteagam __ __ ulteagd __ __

58. Nessa última vez que você encaminhou o paciente você veio junto ou pediu que ele viesse sozinho? (1) Veio junto **(2) Encaminhou [→60]** ( ) Outro: _____ veioag __

59. SE VEIO JUNTO: Porque você veio junto? **[→61]** pqveioag __
(1) Porque o caso era grave (2) Para facilitar/agilizar o atendimento
(3) Porque queria acompanhar o caso (4) Porque é norma do serviço
( ) Outro: _____

60. SE ENCAMINHOU: Você mandou algum bilhete dizendo porque encaminhou o paciente ao posto de saúde? (1) Sim (2) Não (3) Não, mas avisou antes bilhag __

61. Você ficou sabendo desse paciente depois que ele foi atendido?(1)Sim **(2) Não[→68]** fisabag __

62. SE SIM: Quanto tempo depois você ficou sabendo sobre o paciente? temsabag __ __
__ __ dias *(00, se no mesmo dia)*

63. Como você ficou sabendo do paciente? Você ...

foi ao serviço de saúde para saber o que aconteceu ao paciente?	(1) Sim	(2) Não	cosabag __
foi chamado ao serviço de saúde pela pessoa que o atendeu?	(1) Sim	(2) Não	chamag __
recebeu um bilhete de quem o atendeu?	(1) Sim	(2) Não	bebiag __
foi procurado por algum familiar?	(1) Sim	(2) Não	profag __
voltou a casa do paciente para saber sobre ele?	(1) Sim	(2) Não	vocasag __
Outro: _____		(0) Não	ousabag __

64. Este paciente precisou seguir algum tratamento? (1) Sim, em casa — tracag __
(2) Não [➔681] **(3) Não sabe [➔68]** **(4) Sim, hospital [➔68]**

65. SE SIM: Alguém do posto de saúde pediu a você para ajudar a tratar este paciente em casa? (1) Sim, e eu fui (2) Sim, mas eu não fui — apacag __
(3) Não, mas eu fui **(4) Não, e eu não fui [➔68]**

66. SE FOI: O que você fazia? _____ — facasag __
_____

67. Você informava ao enfermeiro/médico sobre como o paciente estava indo? — infomeag __
(1) Sim, sempre (2) Sim, as vezes (3) Não

68. Eu vou citar alguns materiais e equipamentos que você usa no seu trabalho e gostaria que você me dissesse se algum deles está em falta neste momento:

Camiseta	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	camisag __ __
Calça	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	calcag __ __
Sapato/botina	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	sapatag __ __
Meias	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	meias __ __
Boné	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	boneag __ __
Colete	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	coletag __ __
Sacola	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	sacolag __ __
Fichas de cadastro	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	fichag __ __
Termômetro	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	termoag __ __
Lápis	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	lapisag __ __
Borracha	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	borrag __ __
Colher-medida	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	colherag __ __
Soro de pacote	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	soropag __ __
Cartão da criança	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	cartag __ __
Outro1:_____	(00) Não	( ) Está em falta. Há quanto tempo?__ __ mês	out1eqag __ __

[Preencher com 98 se menos de 1 mês]

69. Você tem balança para pesar as crianças? (0) Não ( ) Sim, quantos agentes usam esta mesma balança? __ agentes — balanag __

70. Quantos uniformes completos você já ganhou desde que começou a trabalhar como agente de saúde? __ uniformes **('0' se nunca ganhou [➔72])** — nunifag __

71. SE GANHOU:Há quanto tempo vc ganhou o último uniforme?__ano(s)__ __mês(es) — qunifaga __ qunifagm __ __

72. Você tem bicicleta para fazer visita domiciliar? (1) Sim, tem
(2) Sim, tinha (3) Sim, mas está estragada (4) Não, nunca teve — biciag __

73. Você acha que precisa de uma bicicleta para fazer visitar domiciliar? — nebiciag __
(1) Sim (2) Não (3) Talvez

74. Você tem capa de chuva? (1) Sim, tem (2) Sim, tinha **(2) Não, nunca teve[➔76]** — cachuag __

75. SE SIM: Esta capa foi dada pela secretaria de saúde? (1) Sim (2) Não — qdeucag __

76. Quanto tempo você leva caminhando para ir da sua casa até a casa da família mais distante que vc visita? __ hora __ __ minutos E de bicicleta? __ hora __ __ minutos — camiagh __ camiagm __ __ biciagh __ biciagm __ __
(8, 88, se não possui bicicleta)

77. Qual é a distância da sua casa até esta casa mais distante? — discasag __ __
__ __ km (00 se menos de 1 km; 1 légua = 6 km)

78. Você faz estas visitas a pé, de bicicleta ou a cavalo? — comoviag __
(1) A pé (2) De bicicleta (3) A Cavalo
(4) A pé e de bicicleta (5) De bicicleta e a cavalo (6) A pé, de bicicleta e cavalo
( ) Outro: _____

79. Você têm:

Carteira assinada?	(1) Sim	(2) Não	cartasag __
Férias?	(1) Sim	(2) Não	feriasag __
Décimo terceiro salário	(1) Sim	(2) Não	13ag __
Pagamento de insalubridade?	(1) Sim	(2) Não	insalag __
Salário família?	(1) Sim	(2) Não, não tem filho	salafag __
		(3) Tem filho, mas não recebe	

80. Quanto você recebeu de salário no mês passado? R$ __ __ __ , __ __ — salag __ __ __ __ __ __

81. Você é contratado por quem? (1) Prefeitura ( ) Outra: _____ — contratag __

82. Você se sente fazendo parte da equipe do posto de saúde?
(1) Sim, sempre [➔84] **(2) Sim, as vezes [➔84]** (3) Não — equipag __

83. SE NÃO: Porque você não se sente fazendo parte da equipe do posto de saúde? ____ — naoeqag __ __
_____
_____

84. Você se sente mais do posto de saúde ou da comunidade? — pocoag __
(1) Mais do posto de saúde (2) Mais da comunidade
(3) Tanto do posto quanto da comunidade (4) Nem da comunidade nem do posto

85. Porque? _____ — pqcoag1 __ pqcoag2 __ pqcoag3 __ pqcoag4 __
_____
_____

86. Você se sente melhor quando está no posto de saúde ou na comunidade? — semeag __
(1) No posto de saúde (2) Na comunidade
(3) Sente-se bem nos dois (4) Não se sente bem em nenhum deles

87. Porque? _____ — pqseag1 __ pqseag2 __ pqseag3 __ pqseag4 __
_____
_____
_____

88. Você acha que, em geral, a equipe do posto de saúde acredita no trabalho dos agentes de saúde? (1) Sim, sempre (2) Sim, as vezes (3) Não — econfag __

89. E as pessoas que o agente visita, você acha que, em geral, elas acreditam no trabalho dele? (1) Sim, sempre (2) Sim, as vezes (3) Não — coconfag __

90. Você acha que, em geral, o agente de saúde se sente confiante, seguro naquilo que ele faz? (1) Sim, as vezes (2) Sim, sempre (3) Não — segurag __

91. Alguma vez você achou que a equipe do posto de saúde deu pouca importância ao seu trabalho? (1) Sim, no começo (2) Sim, as vezes (3) Sim, sempre (4) Não — eqdesag __

92. E as pessoas que você visita, alguma vez vc achou que elas davam pouca importância ao seu trabalho? (1) Sim, no começo (2) Sim, as vezes (3) Sim, sempre (4) Não — descoag __

93. Alguma vez você achou que a equipe do posto de saúde não deu a atenção que vc acha que merece? (1) Sim, no começo (2) Sim, as vezes (3) Sim, sempre (4) Não — edesvalag __

94. E as pessoas que vc visita, vc acha que alguma vez elas não deram a atenção que vc acha que merece? (1) Sim, no começo (2) Sim, as vezes (3) Sim, sempre (4) Não — cdesvag __

95. Alguma vez, alguma pessoa do posto de saúde tratou você mal, faltou com respeito com você? (1) Sim, no começo (2) Sim, as vezes (3) Sim, sempre (4) Não — etramag __

96. E as pessoas q vc visita, alguma vez vc achou q elas trataram vc mal, q faltaram com respeito com vc? (1) Sim, no começo (2) Sim, as vezes (3) Sim, sempre (4) Não — cotramag __

97. Se você disser para uma mãe que o filho dela está doente e precisa ser levado depressa para o posto de saúde, você acha que ela acreditaria? — maeacrag __
(1) Sim **(2) Não [➔99]** **(3) Talvez [➔99]**

98. SE SIM: Você acha que esta mãe levaria o filho para o posto de saúde? — maelevag __
(1) Sim (2) Não (3) Talvez

99. Você já ouviu falar na Pastoral da Criança? (1) Sim (2) Não — fapastag __

100. E na líder da Pastoral, você já ouviu falar? (1) Sim (2) Não **[➔148]** — lpfalag __

101. SE SIM: Você pretende ser líder da Pastoral também? (1) Sim (2) Não (3) Não sabe — qselpag __

102 . SE SIM: Porquê _____ — pqslag __
_____

103. Quais os tipos de soro para tratar diarréia que você conhece?

(1) Soro de pacote	(1) Sim, esp.	(2) Sim, ind.	(3) Não	pacon __
(2) Soro caseiro, colher-medida	(1) Sim, esp.	(2) Sim, ind.	(3) Não	colcon __
(3) Soro caseiro, punhado-pitada	(1) Sim, esp.	(2) Sim, ind.	(3) Não	ppcon __
(4) Outra solução caseira sal/açúcar	(1) Sim, esp.	(2) Sim, ind.	(3) Não	sosacon __
(5) Soro comprado na farmácia	(1) Sim, esp.	(2) Sim, ind.	(3) Não	sofacon __
(6) Soro de cereais/água de arroz	(1) Sim, esp.	(2) Sim, ind.	(3) Não	socecon __
(7) Outro tipo de soro : _____			**(0) Não**	ousoro __

104. Qual deles você prefere? ____ ***('0' se não tem preferência por nenhum tipo de soro)*** [➔151] — soropre __

105. SE PREFERE ALGUM DELES: Porque você prefere <SORO>?

Se parece com remédio	(1) Sim	(2) Não	parem __
É mais fácil de preparar	(1) Sim	(2) Não	fapre __
Têm efeito mais rápido	(1) Sim	(2) Não	efrap __
Está mais a mão/tem em casa	(1) Sim	(2) Não	amao __
Não tem perigo de errar ao fazer	(1) Sim	(2) Não	naoerra __
É mais barato	(1) Sim	(2) Não	barato __
É mais higiênico	(1) Sim	(2) Não	limpo __
Outro:_____		(0) Não	oupre1 __

106. Você sabe preparar o soro caseiro usando a colher-medida? (1) Sim **(2) Não [➔153]** coprecol __

107. SE SIM: Como é que prepara?

Um copo de água de 200 ml	(1) Sim	(2) Não	(3) Não sabe	copagua __
Duas medidas da porção maior de açúcar	(1) Sim	(2) Não	(3) Não sabe	qtacuc __
Uma medida da porção menor de sal	(1) Sim	(2) Não	(3) Não sabe	qtsal __

108. Você sabe preparar o soro de pacote? (1) Sim **(2) Não [➔155]** coprepa __

109. SE SIM: Como é que prepara o soro de pacote?

Um litro de água	(1) Sim	(2) Não	(3) Não sabe	liagua __
Um pacote de soro	(1) Sim	(2) Não	(3) Não sabe	pacoso __
Tomar todo o litro em 24 horas	(1) Sim	(2) Não	(3) Não sabe	soro24 __
Guardar na geladeira	(1) Sim	(2) Não	(3) Não sabe	guagel __

110. Quando uma criança com diarréia deveria ser levada ao posto de saúde: Quando...

A diarréia dura duas semanas ou mais?	(1) Sim	(2) Não	(3) Não sabe	14dps __
Têm falta de apetite?	(1) Sim	(2) Não	(3) Não sabe	apeps __
Têm desidratação?	(1) Sim	(2) Não	(3) Não sabe	desps __
Vomita?	(1) Sim	(2) Não	(3) Não sabe	vomps __
Têm febre?	(1) Sim	(2) Não	(3) Não sabe	febps __
Têm sangue nas fezes?	(1) Sim	(2) Não	(3) Não sabe	sangps __
Têm catarro nas fezes?	(1) Sim	(2) Não	(3) Não sabe	pusps __

111. Você já viu uma colher-medida de plástico como esta? (1) Sim (2) Não **[➔164]** colmed __

112. SE SIM: Você tem, agora, alguma colher-medida de plástico para dar às mães? temcol __
(1) Sim, têm
(2) Tinha, acabou [➔158, 160 e 162]
(3) Não, nunca teve [➔164]

113. SE TEM OU TINHA: Onde você consegue ou conseguia estas colheres-medida? ondecol __
(1) Posto de saúde (2) Prefeitura
(3) Pastoral/Igreja ( ) Outro: _____

114. Quantas colheres-medida vc têm agora no seu material para dar às mães? __ __ un. qtcol __ __

115. SE NÃO TEM COLHER-MEDIDA: Faz quanto tempo que você não recebe colher-medida para dar às mães? nrecola __ nrecolm __ __ nrecold __ __
__ ano(s) __ __ mês(es) __ __ dias *('0/00' se nunca recebeu)*

116. SE NÃO DISTRIBUI MAIS: Você parou de distribuir colher-medida porque ... volcol __ __

Está em falta no posto de saúde (PS)/Igreja	(1) Sim	(2) Não	dacol __
O pessoal do PS/Pastoral recomenda o soro de pacote	(1) Sim	(2) Não	recsoro __
Ele (ACS ou LP) não gosta de distribuir colher-medida	(1) Sim	(2) Não	aldico __
As mães preferem o soro de pacote	(1) Sim	(2) Não	mapaco __
As mães perdem as colheres muito facilmente	(1) Sim	(2) Não	maeper __
Outro: _____		(0) Não	oucopq __

117. Você já viu um cartão como este? viucar __
(1) Sim, já vi (2) Não, nunca vi [➔166] (3) Não lembra [➔ 166]

118. SE SIM: Para que serve este cartão?

Marcar o peso da criança	(1) Sim	(2) Não	marpeso __
Marcar as vacinas	(1) Sim	(2) Não	marvac __
Acompanhar o desenvolvimento	(1) Sim	(2) Não	acodes __
Acompanhar o crescimento	(1) Sim	(2) Não	acocres __
Marcar consulta no posto de saúde	(1) Sim	(2) Não	marcon __
Outro1: _____		(0) Não	carout1 __
Outro2: _____		(0) Não	carout2 __

119. CARTÃO 1: Esta parte do cartão mostra o peso de uma criança durante os primeiros meses de vida. Você acha que esta criança está em perigo? cartao1 __

(1) Sim (2) Não [➔ 168] (3) Mais ou menos [➔ 168]

120. SE SIM: Você acha que esta criança precisa ser levada ao posto de saúde? perigo1 __

(1) Sim (2) Não (3) Não sabe

121. CARTÃO 2: E esta outra criança, você acha que ela está em perigo? cartao2 __

(1) Sim (2) Não [➔ 170] (3) Não sabe [➔ 170]

122. SE SIM: Você acha que esta criança precisa ser levada ao posto de saúde? perigo2 __

(1) Sim (2) Não (3) Não sabe

123. Uma criança com um ano de idade, sem febre, que não quer se alimentar e que quando respira dá para ver todas as costelinhas precisa ser levada ao médico? pnmti __

(1) Sim (2) Não [➔ 172] (3) Não sabe [➔ 172]

124. SE SIM: Que doença ela pode ter? doeti __

(1) Pneumonia (2) Outra doença respiratória (3) Não sabe
(4) Desnutrição ( ) Outra: _____

125. Na sua opinião, quando uma criança deveria ser levada depressa ao posto de saúde: Quando...

Não consegue mamar no peito ou tomar líquidos?	(1) Sim	(2) Não	(3) Não sabe	lemama __
Não melhora de uma doença ou problema?	(1) Sim	(2) Não	(3) Não sabe	lenamel __
A febre não passa?	(1) Sim	(2) Não	(3) Não sabe	lefebre __
Tem dificuldade para respirar?	(1) Sim	(2) Não	(3) Não sabe	ledifres __
Tem respiração rápida?	(1) Sim	(2) Não	(3) Não sabe	leresra __
Tem sangue nas fezes?	(1) Sim	(2) Não	(3) Não sabe	lesanfe __
Toma pouco líquido?	(1) Sim	(2) Não	(3) Não sabe	lepoliq __
Vomita tudo o que bebe ou come?	(1) Sim	(2) Não	(3) Não sabe	levomi __
Têm ataque (convulsões)?	(1) Sim	(2) Não	(3) Não sabe	leconv __

126. Uma criança de sete meses de idade no colo da mãe e respirando 60 vezes em um minuto está ou não doente? pnm60 __

(1) Sim (2) Não [➔175] (3) Não sabe [➔ 175

127. SE SIM: Que doença ela pode ter? doe60 __

(1) Pneumonia (cansaço/canseira/cançado) (2) Outra doença respiratória
(3) Não sabe (4) Desnutrição ( ) Outra doença: _____

128. A partir de que idade você acha que uma criança deveria ser levada ao posto de saúde por não conseguir ficar em pé sozinha? __ ano(s) __ __ meses — fipe6a __ fipe6m __ __

129. Uma criança com um ano e meio de idade que não consegue falar uma palavra inteira precisa ser levada ao posto de saúde? — falala __
(1) Sim (2) Não (3) Não sabe

130. Você saberia me dizer contra que doenças uma criança deveria estar vacinada até os oito meses de idade?

Paralisia infantil/Pólio	(1) Sim, esp.	(2) Sim, ind.	(3) Não	polio __
Sarampo	(1) Sim, esp.	(2) Sim, ind.	(3) Não	sara __
Coqueluche	(1) Sim, esp.	(2) Sim, ind.	(3) Não	coque __
Tétano	(1) Sim, esp.	(2) Sim, ind.	(3) Não	teta __
Difteria	(1) Sim, esp.	(2) Sim, ind.	(3) Não	dift __
Hepatite	(1) Sim, esp.	(2) Sim, ind.	(3) Não	hepa __
Tuberculose	(1) Sim, esp.	(2) Sim, ind.	(3) Não	tbc __
Gripe/Infecção respiratória	(1) Sim, esp.	(2) Sim, ind.	(3) Não	hae __

131. Você já ouviu falar na vacina BCG? (1) Sim (2) Não [➔182] — fabcg __

132. SE JÁ OUVIU FALAR: Contra que doença ela protege? — probcg __
(1) Tuberculose (2) Pneumonia
(3) Sarampo (4) Não Sabe
( ) Outra:_____

133. Como é dada a vacina BCG? — dadabcg __
(1) Gotinhas na boca (2) Injeção no braço (3) Injeção na nádega
(4) Injeção na coxa (5) Não sabe ( ) Outra:_____

134. Como podemos comprovar, sem a carteira de vacinas, se uma criança foi vacinada pela BCG? (1) Cicatriz no braço (2) Não sabe (3) Não há como saber — confbcg __

135. O que você acha de uma criança de um mês de idade que mama no peito e recebe chás ou água todos os dia. Isto é bom, ruim, ou não faz diferença? — liqbom __
(1) Bom (2) Ruim (3) Não faz diferença (4) Não sabe

136. Na sua opinião, até que idade uma criança deveria mamar somente no peito sem receber água, chás, suco ou qualquer outro tipo de alimentos? __ __ mês(es) — mamesc __ __

137. E até que idade uma criança deveria receber leite de peito? __ ano(s) __ __ meses — mamprea __ mampred __ __
(78= Até quando quiser)

138. A partir de que idade você acha que uma criança deveria começar a usar mamadeira? __ __ ° mês *(77, imediatamente; 98, nunca deve receber; 13, se com mais de 1 ano)* — mamade __ __

140. A partir de que idade você acha que uma criança deveria começar a usar chupeta? — bico __ __
__ __°mês *(77, imediatamente; 98, nunca deve receber; 13 se com mais de 1 ano)*

141. Quanto tempo depois de nascida você acha que uma criança deveria ser colocada para mamar no peito da mãe? __ __ hora *(00 se na antes de uma hora)* — mamaho __ __
__ __ dia *(77 se imediatamente)* — mamadi __ __

142. A partir de que mês de gravidez você acha que uma mulher deveria começar as **consultas de pré-natal?** __ __ **° mês** *(77 = quando descobrir)* — inipre __ __

143. Quantas consultas com médico você acha que uma mulher deveria fazer durante todo o pré-natal? __ __ — consde __ __

144. Quantas doses de vacina contra o tétano uma mulher deveria receber na primeira gravidez? __ doses — dosetet __

145. Uma mãe teve um filho há quatro anos e, naquela gravidez, tomou três doses de vacina contra o tétano. Esta mesma mãe está grávida de novo. Para esta gravidez ela precisa tomar vacina contra o tétano? — esqtet __

(1) Sim (2) Não [➔193] (3) Não sabe [➔ 193] — ntet __

146. Quais exames você acha que uma gestante deveria fazer durante a gravidez?

Exame de urina	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	uripre __
Exame de fezes	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	fezpre __
Exame de sangue	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	sanpre __
Exame de lâmina	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	capre __
Teste para AIDS (HIV)	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	hivpre __
Teste para Rubéola	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	rupre __
Teste para Sífilis	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	sifpre __
Teste para Hepatite	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	hepre __
Fazer ultrassom do nenê	(1) Sim, esp.	(2) Sim, ind.	(3) Não	(4) Não sabe	sompre __
Outro1:_____				(0) Não	ex1pre __
Outro2:_____				(0) Não	ex2pre __

147. Além desses exames, o que mais você acha que o médico deveria fazer durante a consulta para uma gestante no pré-natal?

Medir a pressão	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	mepre __
Medir a barriga	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	mebar __
Fazer exame de toque/por baixo	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	baipre __
Examinar o seio	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	mapre __
Escutar o coração do nenê	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	sompre __
Ensinar a dar de mamar no peito	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	amapre __
Conversar sobre o tipo de parto	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	parpre __
Pesar a gestante	(1) S, esp.	(2) S, ind.	(3) Não	(4) Não sabe	pesapre __
Outro1:_____				(0) Não	copre1: __
Outro2:_____				(0) Não	copre2: __

148. Qual é o serviço de saúde do Estado ou da Prefeitura mais perto da sua casa? — sprox __

(1) Posto/Centro de Saúde (2) Atendimento 24 horas
(3) Hospital/Pronto Socorro ( ) Outro:_____

149. Qual é a distância da sua casa até este <SERVIÇO DE SAÚDE> mais próximo? — dists __ __
__ __ km *('00'=se menos de 1 km; 1 légua = 6 km)*

150. Quanto tempo você gasta da sua casa até este <SERVIÇO DE SAÚDE>mais próximo: — discah __ discam __ __

De carro/ônibus: __ horas __ __ minutos — dispeh __
Caminhando: __ horas __ __ minutos — dispem __ __

151. Você mora em casa própria, alugada ou cedida/emprestada? propria __
(1) Própria (2) Alugada (3) Cedida/Emprestada

152. A casa onde você mora fica em área de invasão? invasao __
(1) Sim (2) Não (3) Não sabe

153. A sua casa é de: tipcasa __
(1) Madeira (2) Taipa (3) Tijolo
(4) Tijolo e taipa (5) Tijolo/madeira (6) Papelão, lata
(7) Palha (8) Outro

154. Como é o piso da sua casa? piso __
(1) Cerâmica (2) Cimento (3) Carpete
(4) Tábua (5) Chão batido/terra (6) Outro

155. Quantos compartimentos tem a sua casa? __ __ compartimentos compaca __ __

156. Quantos compartimentos usam para dormir? ___ compartimentos compado __

157. Tem água encanada? (1) Sim, dentro de casa (2) Sim, no terreno (3) Não aguaenc __

158. De onde vem a água usada para beber? fonte __
(1) Rede pública (2) Chafariz (3) Cisterna, poço
(4) Rio, lagoa, açude (5) Caminhão - pipa (6) Outro

159. Como é a privada da casa? privada __
(1) Sanitário com descarga (2) Sanitário sem descarga
(3) Casinha/fossa negra (4) Não têm

160. Na sua casa têm rede de esgoto? (1) Sim (2) Não esgoto __

161. Na sua casa têm: *(Confirmar se funciona)*

Rádio?	(1) Sim	(2) Não	radio __
Televisão?	(1) Sim	(2) Não	tv __
Geladeira?	(1) Sim	(2) Não	gela __
Filtro?	(1) Sim	(2) Não	filtro __
Fogão a gás?	(1) Sim	(2) Não	fogas __
Fogão a lenha?	(1) Sim	(2) Não	fole __

162. No mês passado quanto ganharam as pessoas da sua casa que trabalharam? r1
Pessoa 1: R$ __ __ __ __, __ __ *(Iniciar pela pessoa de maior renda e não incluir a renda* r2
Pessoa 2: R$ __ __ __ __, __ __ do *agente de saúde porque já foi perguntado anteriormente)*
Pessoa 3: R$ __ __ __ __, __ __ r3
Pessoa 4: R$ __ __ __ __ ,__ __ *(Se houver + de 4 pessoas, somar na renda da pessoa 4)* r4

163. Vocês tem alguma outra fonte de renda como pensão, aluguel? ou
(0) Não ( ) Sim, quanto recebeu no mês passado? R$ __ __ __ __ ,__ __

164. Você tem religião? (1) Sim **(2) Não [➔ 226]** relig __

165. SE SIM: Qual? (1) Católica (2) Protestante (3) Espírita qrelig __
(4) Afro-Brasileira ( ) Outra: _____

166. Qual posto de saúde você marca consulta ou encaminha na maioria das vezes as pessoas que você visita? _____

aidpime __ __
aidpiag __ __
psf __
pacs __

167. Você está satisfeita com o seu trabalho de agente comunitário de saúde?
(1) Sim (2) Não (3) Mais ou menos [➔229]

satisfe __

168. SE SIM OU NÃO: Por quê?_____
_____
_____
_____

satsim __ __
satnao __ __

169. Quantos agentes de saúde/líderes têm na sua equipe? __ __ agentes/líder

nlpag __ __

170. Desde que você começou a trabalhar, quantos [agentes de saúde ou líderes da sua equipe foram trocados ou pediram para sair? __ agentes

trolpag __

171. Você aceitaria usar o mesmo peso feito pelo líder da Pastoral?

(1) Sim (2) Não (3) Talvez

acepeso __

172. Número do questionário da mãe: __ __ __

df / /00

173. Data da entrevista: __ __/__ __/2000

nmae __ __ __

173. Entrevistador(a): _____ __ __

entreal __ __